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Improving clinical efficiency of military treatment facilities

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THESIS

IMPROVING CLINICAL EFFICIENCY OF MILITARY TREATMENT FACILITIES

by

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September 2006

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13. ABSTRACT

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IMPROVING CLINICAL EFFICIENCY IN MILITARY TREATMENT FACILITIES

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TABLE OF CONTENTS

LIST OF FIGURES

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LIST OF TABLES

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I also need to express my gratitude to Lieutenant Mathew Bouma, United States Navy, who provided me the data for this thesis when other channels failed.

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EXECUTIVE SUMMARY

The Department of Defense is facing medical expenses that are growing at an unprecedented rate. The top leadership is looking for ways to reduce costs and improve efficiency while still providing world class medical care for its beneficiaries. One option is to implement a relatively new tool called Data Envelopment Analysis (DEA). This tool uses linear programming to identify efficient entities, called *decision making units* (DMU), relative to the other entities in the set.

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For this research, a collection of 49 obstetric clinics from all branches of military service and from across the continental United States were evaluated using DEA methodology. The result of the analysis shows that there is significant variability in the level of staffing and expenses among the clinics. The amount of variability is troubling and suggests that there are some inconsistencies in the way clinics are managed. Additional analysis comparing the clinics based on branch of military service, geographical region, and size reveals some interesting results. The Army scored the highest average efficiency score followed by the Air Force and the Navy. Clinics in the southern region scored the highest followed by the northern and western region. Finally, a comparison of large versus small hospitals revealed that larger hospitals are more efficient than smaller hospitals. Determining the root cause of the inefficiency is outside the scope of this study and best left to the clinical managers who are familiar with their clinics operations.

The best aspect of DEA is that it is a relative measure which means that each clinic is compared to its peers. This means that each clinic is given an efficient clinic as a benchmark to pattern itself against.

DEA has a lot of potential and has proven to be a useful and valid tool in many studies. This research demonstrates that it can be used to improve efficiency and reduce the cost of military medicine, one clinic at a time.

I. INTRODUCTION

A. OVERVIEW

> Emergencies have always been necessary to progress. It was darkness that produced the lamp. It was fog that produced the compass. It was hunger that drove us to exploration.
>
> Victor Hugo (1802–1885)

Our nation's healthcare expenses are approaching an emergency situation. Healthcare costs are spiraling out of control. In 2002, the national healthcare expenses were $1.6 trillion, a 9.3 percent increase from the previous year. This represents a four-year trend in which healthcare spending grew faster than the overall economy, as measured by GDP (HCFR, 2004). The Department of Defense (DoD) is not immune to these rising costs. In 2005, the DoD spent $37 billion on health care. This represents a 100% increase over the past four years. With no end in sight, the Assistant Secretary of Defense for Health Affairs, Dr. William Winkenwerder Jr., estimates that, within five years, spending will increase to $50 billion (DEFESELINK, Jan. 2005).

There are various reasons for the increase in costs but what is clear is that military medicine must look for new ways to reduce costs and improve efficiency. In a brief at the annual TRICARE Conference, Dr. Winkenwerder told the audience that "It's imperative that department healthcare professionals apply our full attention and our best management efforts to these matters" (DEFESELINK, Jan. 2005). As suggested by Dr. Winkenwerder, many professional healthcare executives are looking for ways to reduce costs.

One of the ways to gauge performance is to compare oneself to the competition. In the military support sector this is often done by comparing services to our civilian counterparts. This is because civilian organizations are motivated by profit so they have a pressing need to maximize their efficiency. This in itself does not guarantee efficiency but it does provide a benchmark for military organizations. The challenge here is that military treatment facilities (MTF) are different therefore comparison is not always possible. For example, military hospitals are non-profit, serve a unique population, and have mobilization requirements. In addition there is also a difference in staffing. Military

hospitals are primarily staffed by military personnel whose pay is based on a salary so there is no overtime pay, there are no unions, and military people are not regimented by a job description, they are highly flexible. These differences make comparison difficult so the option is to compare military hospitals to one another.

This is where a technique called Data Envelopment Analysis (DEA) proves to be a valuable tool. DEA determines how efficiently an operating unit (or clinic) converts inputs to outputs when compared with other units (Ragsdale, 2004). It does this by using linear programming to optimize each individual unit with the objective of calculating a discrete piecewise frontier determined by the set of Pareto-efficient units (Charnes et al., 1994). DEA was introduced in 1978 by Charnes, Cooper, and Rhodes when it was applied to evaluating the performance of public schools (Charnes et al., 1994). At the time is was a challenge estimating the relative "technical efficiency" of the schools involving multiple outputs and inputs without the usual information on prices (Charnes et al., 1994). Since this time the popularity of DEA has grown and it has become an established Management Science tool for technical-efficiency analysis of public sector decision-making units (DMU) (Charnes et al., 1994). DEA also has a history of being used to measure efficiency in MTFs but what this study attempts to do is use DEA to evaluate a particular clinic using metrics specific to the Obstetric clinic.

B. BACKGROUND

The Department of Defense operates one of the largest healthcare systems in the country serving almost 9.1 million beneficiaries. Together the Army, Air Force and Navy operate 70 military hospitals/medical centers and just over 825 medical and dental clinics worldwide. This is accomplished with a team of 40,700 civilian and 90,100 military service members. In an average week there are 2,000 babies born and 1.9 million prescriptions are filled. (TRICARE stakeholders report, 2005)

This enormous and complex organization is structured in a managed care format called TRICARE Management Activity. TRICARE is under the direct auspices of the

Office of the Assistant Secretary of Defense (Health Affairs). To better serve its customers TRICARE is broken up in to three continental United States (CONUS) regions and 1 catchall overseas region.

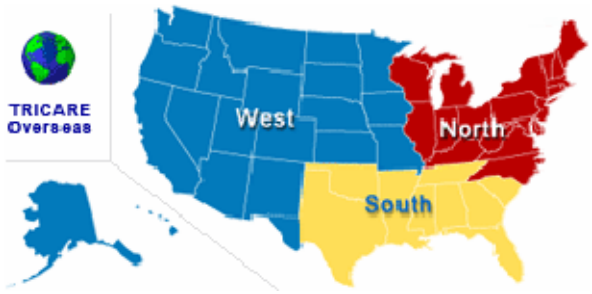

Figure 1. TRICARE Regions, WEBSITE 2006

The three CONUS regions use civilian contractors like Humana, Health Net and Tri-West to manage the day to day operation of the managed care network. This does not say that contractors run the medical facilities. Military hospitals and clinics are operated predominately by military personnel who work in conjunction with TRICARE.

Beneficiaries overseas can receive healthcare in two ways. If the member is near a military medical facility, they would get their care from that facility. If they are in a remote location, they are still covered by TRICARE but would get their care from a civilian contractor by the name of International SOS which handles all aspects of care (TRICARE news release 2003).

As care for military personnel has evolved over the years, there have been some unusual arrangements. One of these is the U.S. Family Health Plan (USFHP) which is a remnant of the U.S. public health facilities which were used as uniformed service treatment facilities. These civilian facilities were basically hospitals authorized to care for military personnel. They pre dated TRICARE but are still in use today. The USFHP is comprised of six medical centers located predominately in the northeastern United States. What is interesting for the scope of this thesis is that they are civilian

organizations that report to TRICARE when it comes to caring for military beneficiaries. This is important because they can offer a reference point when it comes to comparing efficiency since they are civilian organization that is quasi-military (USFHP Website 2006).

C. CLINIC SELECTION

As will be shown in the next chapter, the application of Data Envelopment Analysis in the health care setting has predominantly been used to compare entire hospitals to one another. While there is value to this approach, it does very little to help clinic managers determine if their clinics are operating efficiently. In this study we attempt to apply DEA to a specific clinic across the TRICARE spectrum.

When the decision came to determining which clinic to choose, the field of obstetrics (OB) came to the forefront. Obstetrics is defined as the branch of medicine that deals with the care of women during pregnancy, childbirth, and the recuperative period following delivery. (The free dictionary, 2006) Obstetrics was chosen because of several factors. First is the dynamic nature of OB and the second is the financial aspects of OB care in military hospitals. In this thesis, the term *clinic* is used to refer to services performed in an ambulatory setting as well as those that are performed on patients admitted to the hospital.

Childbirth is a dynamic time for a family as well as the hospital. Childbirth can happen at anytime and depending on the complexity of the case it can require a host of support services. The only other clinic that faces this type of dynamic environment is the emergency room. This shifting situation makes it difficult for clinical managers to be efficient. They need to balance staffing requirements with expected deliveries. If it is done well, they have the right mix of staff to support the delivery process. If they do not it can either be a waste of resources or dangerous to patient safety. What we are attempting to do is identify which clinics have found that balancing point. The next step would be to investigate what techniques enable them to become more efficient than their peers. This can then lead to the development of best business practices.

The financial aspects of providing OB care are another reason it is an attractive clinic to study. Often business are faced with a "make it or buy it" decision, which means they need to decide if it is cheaper to make a product or to buy it from someone who can produce it cheaper. With rising healthcare costs, the military may be faced with a "make it or buy it" scenario. The reason can be traced back to the TRICARE mission statement which states that their objective is "providing health support for the full range of military operations" (TRICARE stakeholders report 2005).

If the cost of providing obstetric care becomes unreasonable, it could be argued that it makes better economic sense to outsource this service. The TRICARE mission would support this decision because the main objective is to support military operations, and obstetrics is not a field that plays heavily into military operations. Arguments like these heighten the urgency to improve efficiency and reduce costs. This thesis will demonstrate that this can be done with tools such as DEA. If OB cost remain competitive with the civilian sector, "make it or buy it" decisions will lean towards keeping the service in-house because it provides other benefits including medical training and a comprehensive medical facility for TRICARE beneficiaries.

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II. LITERATURE REVIEW

This chapter describes the current state of knowledge about Data Envelopment Analysis (DEA) and its ability to evaluate the relative efficiency of like medical facilities. It is formatted with the most general issues up front and steps down to the very specific studies related to this research.

A. EFFICIENCY

Any study on efficiency should start with defining what it is we are looking at. The Merriam-Webster Diction defines efficiency as "the ratio of the useful energy delivered by a dynamic system to the energy supplied to it." Though this is a good physical definition, there are other ways to determine the efficiency of an entity. It should be noted that the terms *efficiency* and *productivity* are used interchangeably in this thesis to refer to system performance. Usually, efficiency is based on some aspects related to operation. For instance, the efficiency of an automobile can be measured in its speed, horsepower, or miles-per-gallon. Similarly, the business world has ways of determining efficiency like profit, inventory rotation, or stock price. Efficiency measurement becomes difficult when there are no agreed upon standards for comparison.

Measuring the performance of non-profit organizations like charities, universities, and hospitals is often difficult. For instance, Americans donate $160 billion to charitable organizations, yet if you were to ask a donor to define what a "good" or "efficient" charity is, most would be hard-pressed to give an answer. The reason is that there are no market forces that shape the sector and no agreed-upon set of standards or measurements that unify it. In the absence of agreed upon standards most people resort to comparing non-profit organizations based on overhead cost (Egger, 2004). This measure of efficiency is criticized because it is possible to have a charity with high overhead but is still highly respected for its community service. For instance, if one compares Habitat for Humanity and Girl Scouts; they spend 23 % and 1% respectively on fundraising. Both are considered efficient and well respected, but it demonstrates that merely looking at the numbers does not provide the whole story.

Military hospitals are similar to non-profits in that they do not have a profit motive, but they are increasingly coming under scrutiny as healthcare costs rise. Therefore, it is imperative that efficiency measures be developed and used to identify inefficiencies that may lead to cost savings.

B. PERFORMANCE MEASUREMENT OPTIONS

1. Data Envelopment Analysis

One of the methods for measuring efficiency is Data Envelopment Analysis (DEA). Formally developed by Charnes, Cooper and Rhodes (1978), it was described by them as a ”mathematical programming model applied to observational data that provides a new way of obtaining empirical estimates of relations–such as the production functions and/or efficient production possibility surfaces–that are the cornerstone of modern economics”(Charnes et al., 1978). Since that time DEA has exploded in popularity due to its flexibility and ability to find relationships that were previously resistant to other forms of analysis. In simple terms, DEA takes a collection of similar entities, which can be anything from banks to hospitals, and refers to them as Decision Making Units (DMU). Data from these DMUs is broken down in to inputs and outputs. A linear programming technique is then used to determine the weights for each input and output that is most beneficial to an individual DMU. This process allows all DMUs to identify their ideal weights for each input and output. Once these weights are set, a ratio measure of the weighted inputs and outputs is formed, and the DMUs are compared with respect to that measure. The idea behind this technique is that each DMU is able to grade itself in a fashion that is most favorable to its situation. All of the DMUs ratio measures are then compared to determine which DMUs are most efficient given their resources and outputs. Efficiency is determined by the distance of that measure from the frontier created by the most efficient DMUs. A simple graphical example adopted from Tim Anderson’s DEA webpage will help explain the technique (Anderson, 1996). Let us say there are three baseball players and we wanted to compare their efficiency. Their stats are:

Player A: 100 at-bats, 40 singles, 0 home runs

Player B: 100 at-bats, 20 singles, 5 home runs

Player C: 100 at-bats, 10 singles, 20 home runs

The inputs are the 100 times at-bats while the outputs are the number of singles and home runs. Now, if we allow players to choose an optimal weight for performance, we would see that player A and B would give more weight to singles while player C would give more weight to home runs. In this simple example, one can plot the performance of the DMUs, as shown in Figure 2.

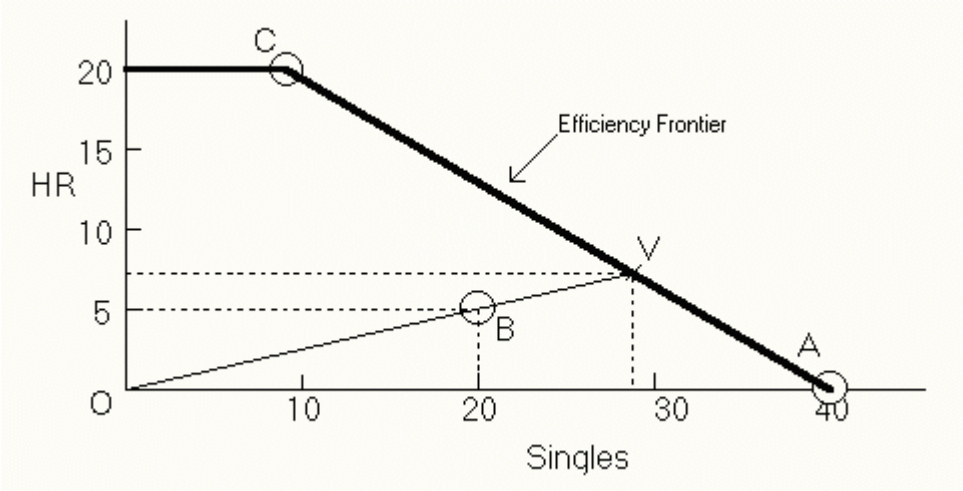

Figure 2. Graphic Representation of DEA: 3 Batters.

We see from Figure 2 that player C and A fall on the efficiency frontier while player B is less efficient. We determine his level of efficiency by comparing his distance from the origin to the efficiency frontier. In this case it is 67%. The unique aspect of DEA is that it gives inefficient DMUs a realistic target to improve efficiency. In the case of Player B, he could aim for point V where he would need to hit about 29 singles and seven home runs.

2. Strengths and Weaknesses

One of the major strengths of DEA is that predetermined weights are not necessary. This benefit comes at a cost because one of the major shortcomings of DEA is that it is a relative, rather than absolute measure. DEA can not determine if all DMUs in the sample are inefficient but rather the inefficiency of an individual DMU when

compared to others in the sample (Sherman, 1981). In this study, we are comparing military obstetrics clinics amongst themselves. In an ideal environment, we would include civilian clinics to determine how the military compares with its civilian counterparts. Unfortunately, this information is not readily available and is proprietary to the civilian hospitals. Despite this setback, we still have the opportunity to compare military clinics and determine which are efficient and which are not. The clinics that are inefficient are the proverbial "low-hanging fruit," since they would be inefficient even if the civilian clinics were included in the analysis. By constantly monitoring and improving the efficiency of the military clinics, we will certainly increase the average efficiency of all military clinics. An additional benefit to comparing just military hospitals is that clinical managers can readily use the recommended efficiency targets. If you add civilian organizations in the analysis, a clinical manager may be able to say that he can not reach the same efficiency of a civilian clinic because he/she operates in a different environment. By comparing clinics in the same organization, they are all faced with the same environment and therefore can realistically strive to reach the efficiency frontier.

From an operational perspective, one of the limitations of DEA is that it does not help determine what clinical or administrative processes need to change in order to achieve efficiency. For example, if DEA determines that a clinic is overstaffed, it can tell the clinic manager how many people to eliminate, but it can not tell them why they need to be eliminated. Staff or budget reductions prescribed by DEA should only be applied after careful consideration and investigation into the root cause of the inefficiency.

Another weakness is that DEA is sensitive to variable selection, model specification and data errors. Sampling error and measurement error are a problem since no underlying distribution of the error term is assumed (Craycraft, 1999). The frontier may be "warped if the data are contaminated by statistical noise" (Bauer, 1990).

Finally, too many input or output variables reduce DEA's ability to differentiate between DMUs. If one has too many variables, all the DMUs appear to be efficient. There is a rule of thumb suggesting that for every input variable one chooses there should

be three DMUs. In this study we will use 49 DMUs, and six input variables and one output variable to ensure we can discriminate between clinics.

C. DEA IN HEALTHCARE

The first reported application of Data Envelopment Analysis in a healthcare environment was conducted by Sherman (1981). In this analysis he compared the medical-surgical departments of 22 Massachusetts teaching hospitals. He focused on determining if the then new technique was applicable to a healthcare setting. What he found was that DEA was a useful tool in evaluating the allocation of resources and that its use could improve efficiency and reduce healthcare costs. He also found that DEA could overcome some of the limitations of other analysis methods like regression and ratio analysis. Finally, he concluded that DEA could be reliably used to measure relative technical efficiency where multiple inputs and outputs must be considered to evaluate efficiency (Sherman, 1981).

Since this initial study was conducted there has been at least a hundred studies using DEA in healthcare settings around the world. The ones of particular interest are those related to the military and obstetrics/gynecology.

D. DEA USE IN MILITARY HEALTHCARE

Data Envelopment Analysis methodology has a long history of being used to evaluate federal and specifically military health care. As far back as 1985, Charnes, Cooper, Dieck-Assad, Golany, and Wiggins were contracted by The Army Health Services Command[1] to asses the use of the relatively new DEA methodology[2] (Charnes et al., 1985). In their study, they used data from 24 Army healthcare facilities and compared DEA to other efficiency measures used at the time. Their conclusion was that DEA overcame the deficiencies of regression and other types of analysis because it did not require *a priori* (predetermined) weights or require explicit specification of interdependencies that may be present in the variables. They go on to state that DEA is a

[1] Now called the Army Medical Command.

[2] Charnes and Cooper were the originators of DEA. Potentially conflicts of interest by having them conduct the study.

valuable technique and should be used by the medical manager. What is interesting to note is that they used Relative Weighted Product (RWP) as a measurement of output, which is one of the metrics used in this analysis.

Despite this recommendation by Charnes and Cooper, it took nearly 10 years before an article on the subject was published in a professional journal. The first article, attributed to Ozcan and Bannick, was written in 1994 (Ozcan et al., 1994). This study conducted a longitudinal study of 124 Army, Navy and Air Force hospitals to observe trends in hospital efficiency. In this study they used data from the American Hospital Association survey, which has some pros and cons. The benefit is that it allowed them to compare military hospitals to a composite civilian equivalent, which can be very beneficial in determining non-profits competitiveness. One of the weaknesses of their study is that it is a strategic-level study with little actionable information. It addition, it fails to incorporate patient complexity so every hospital visit has equal weight. Their conclusion showed that there was little difference between the different services and that, over time, efficiency did not improve.

Several dissertations have been done on the subject and two of the most recent are by Coppola (2003) and by Van Foulton (2005). Coppola's dissertation looked at 78 military medical facilities from 1998 to 2002. He used costs, number of beds, total visits, personnel, and number of services offered as input variables. For output variables he used surgical visits, ambulatory patient visits (APV), emergency room visits, Case Mix Adjusted Discharges (CMAD), Relative Weighted Product (RWP) and live births. His conclusion was that Air Force facilities were slightly more efficient, followed by Army and then Navy facilities. The unexpected result of his study showed that, as a whole, the three services actually gradually declined in efficiency over the five years. Though no single event can justify the decline in efficiency, Coppola theorizes that the increased military operations abroad may have been a factor. Coppola's work is very thorough and exhaustive, but one problem is that he does not capture the complexity of the outpatient workload by using the readily available metric called Relative Value Unit (RVU). In this study we will use RWP and RVU data that is generated based on a common set of values for each medical procedure. The values themselves are set by the federal government and used uniformly across the different military branches.

Van Foulton's dissertation is the most recent addition to the military healthcare efficiency application of DEA. His analysis focused primarily on Army community hospitals and medical centers. For his analysis, he applied DEA, Stochastic Frontier Analysis (SFA), and Corrected Ordinary Least Squares (COLS) methodologies. His objective was to compare all three methodologies, and he found them to be fairly similar in identifying the high and low performers. His study concluded that linear models like DEA resulted in better estimates that SFA (Van Foulton, 2005).

E. OBSTETRIC CLINIC EFFICIENCY

In order to select variables that capture the unique characteristics of the OB/GYN clinic, it was imperative to interview obstetric clinical managers to find out what is important to them. One interview with an OB division officer at Naval Medical Center San Diego was revealing in that it focused on quality concerns such as waiting times, patients having a regular provider, availability of appointments, and patient surveys. (LCDR Ullua, NC, USN, personal communication, 2005) Though these issues are critical in their own right, there was no mention of efficiency in the traditional sense. In fairness, this interview is in no way intended to be representative and may be subject to interviewer bias, but it does reveal what might be important at the clinical level.

From a researcher's perspective, incorporating quality metrics into the study is difficult because there is no agreed upon standards of quality that can be compared across the spectrum of military healthcare facilities. One avenue that provided a proxy for quality was comparing infant mortality rates. As one would imagine, this information is sensitive and not readily available. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is an internationally recognized non-government organization that evaluates the quality of care at hospitals. Their reputation and seal of approval is the gold standard in hospital evaluation. JCAHO evaluates an obstetric clinic by looking at three metrics; vaginal births after cesarean (VBAC), patients with third and fourth degree laceration, and inpatient neonatal mortality. Unfortunately, due to the sensitivity and availability of neonatal mortality rates it was determined that a metric for quality will not be included in this analysis. Despite these obstacles there is plenty of

data on the technical efficiency of obstetric clinics like costs, personnel, and workload. Chapter III we will address these metrics in more detail.

F. OBSTETRIC CLINIC EFFICIENCY USING DEA

This is very specific topic so I did not expect there to be a lot of research in this area. The sole article I found was one by Finkler and Wirtschafter in which they compared the obstetric clinics of 9 for-profit hospitals (Finkler et al., 1993). The interesting aspect of their research was they used the risk-adjusted fetal mortality rate as an outcome indicator. According to them, this measure has been validated and used extensively in California to compare hospitals that provide perinatal services. In order to best capture the dynamics of the obstetrics clinic Finkler and Wirtschafter tried several combinations of inputs. Their conclusion was that irregardless of how the inputs were grouped there was one clinic that consistently performed well and one that did not. In the final analysis the authors concluded that DEA was a robust tool that could provide significant cost savings and should therefore be included in a manager's tool box.

III. DATA AND MODEL FORMULATION

In order to evaluate the performance of an entity it is first crucial to determine what aspects of performance are important as well as what data is available. It is the second part that often drives the first. In the case of evaluating military hospitals, there is a plethora of data and the difficulty is narrowing the scope of variables. There is a rule of thumb among data envelopment practioners that states there should be at most one variable for every three Decision Making Units (DMU) (Charnes A, Cooper WW, Rhodes E., 1978). This guideline ensures that every DMU does not end up on the frontier and therefore considered efficient. This chapter examines the databases available, variables included in the analysis, formulates the model, and demonstrates its application.

A. DATA SELECTION

Based on previous research on hospital efficiency, it is clear that any study needs to include certain factors such as costs, level of treatment, and staffing. The goal here is to identify the key aspects that accurately reflect the intended study.

1. Selection of Variables

The first step in this process is to find out what metrics are currently being used by Obstetric/Gynecology (Ob/Gyn) clinics so that they can be incorporated into this study. Ideally the metrics would be utilized across the services so that clinics could compare themselves to each other. What I found is hospitals tend to split up the obstetric process into two distinct clinics categorized as *outpatient* and *inpatient*. The outpatient clinic has various titles but the function is the same; it provides routine care to women who do not have to stay overnight. Outpatient care is also referred to as ambulatory care since the patients are able to walk on their own. The inpatient clinic on the other hand requires women to stay overnight. In my own research I found that the staff is focused on patient satisfaction and scheduling. (LCDR Ullua, NC, USN personal communication 2005). They use hospital surveys and customer comment cards to determine how they are performing.

At the hospital level, the performance of the Ob/Gyn Clinics is monitored by hospital executives who assign a budget and monitor how the money is spent in comparison to the number of deliveries performed. Productivity is often measured in terms of average length of stay (ALOS), cesarean section rate, case-mix index, occupancy rate and admission rate for other than deliverables.

There is also independent civilian organization that monitors the performance of hospitals called the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). This organization is predominantly concerned with quality and does not have much interest in financial matters except when they apply to the quality of service provided by a hospital.

In conclusion, based on a survey of available metrics, it appears efficiency metrics are practically non existent and that if a clinic stays within budget, patients are satisfied, and there are no major incidences, then the clinic is effective. This conclusion supports the impetus of this study which is that senior hospital executives need some better ways to evaluate the efficiency of a clinic and thereby allocate resources.

2. Databases

In the information age, the problem is no longer having enough data but being able to sift though the enormous amount of data to get the information needed. This is especially true in government organizations. In this study there were several options available for accessing the data required. The options are related to the organizational level at which the data is retrieved.

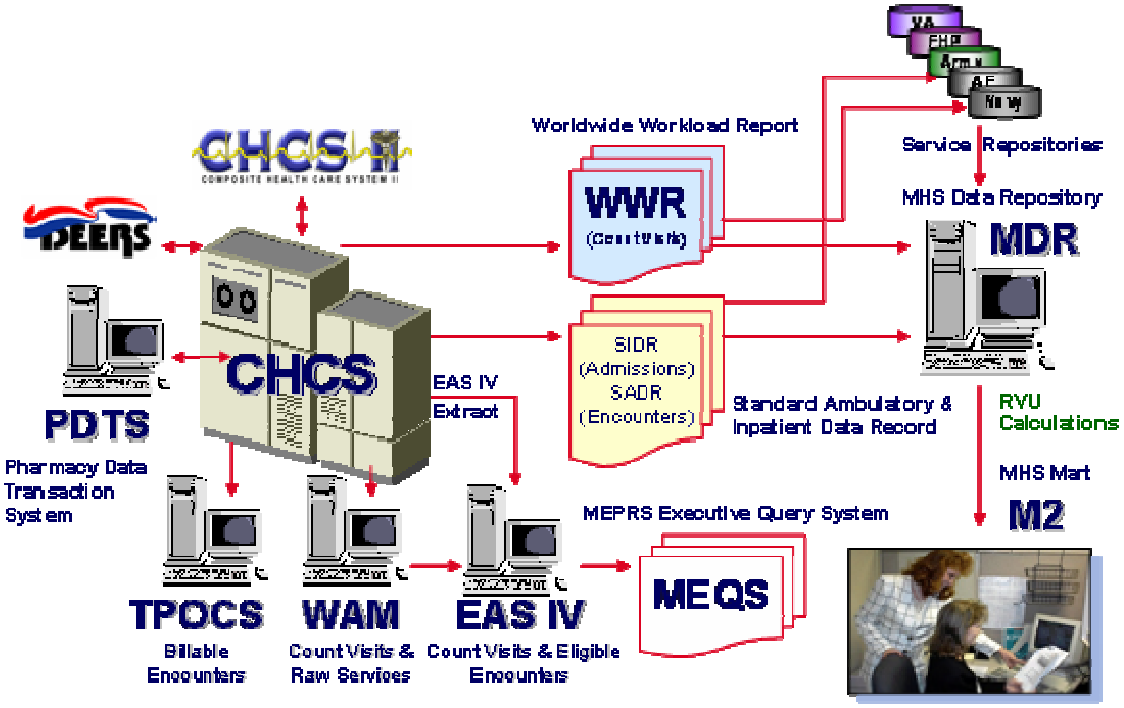

Figure 3. MHS Data map (Charlene Colon, Ambulatory Data Module Briefing, 2005)

The data is aggregated at different levels and filtered according to the needs of the consumer. For instance, at the hospital level, accountability is managed with a system called Expense Assignment System-version four (EAS-IV). This data is then aggregated with other data into a database called Military Health Systems (MHS) Management Analysis and Reporting Tool (MHS MART) or M2 for short. The databases are maintained by different contractors therefore inconsistencies can arise. What is important to know is that while hospitals primarily use EAS-IV, senior level leadership uses the M2 databases. More information on each system is provided below.

a. M2 Database

M2 is a powerful ad-hoc query tool used to obtain summary and detailed views of population, clinical, and financial data from all MHS regions. M2 includes Military Treatment Facility (MTF) and purchased care data with eligibility and enrollment data. This integrated data enhances support to decision-makers at all levels of the MHS. With M2, there is reduced impact on source savvy analysts, it can perform trend analyses, conduct patient and provider profiling studies, and realize opportunities for transferring health care from the private sector to the MTF. (EI/DS website, 2006)

b. EAS-IV

The Medical Expense & Performance Reporting System (MEPRS) is the standard cost accounting system for the Military Health System (MHS), containing Tri-Service financial, personnel, and workload data from reporting medical and dental treatment facilities worldwide. MEPRS assumes an essential role in MHS decision-making and performance evaluation by offering:

- Uniform performance indicators
- Expense data classified by work center
- Human resource utilization data classified by work center
- A standard methodology for cost assignment (MEPRS Website, 2006)

When conducting research it is generally better to extract the data as close to the source as possible but there are some complications. First the data is kept in several databases at the local level therefore acquiring the data and ensuring consistency across all the services would be problematic. Secondly, one needs to ask, who the analysis is being done for. Since this analysis is intended for senior management, who primarily use M2, it is only natural that one would use the database they are most comfortable with.

B. FORMATTING DATA

The M2 database is very large and gives users the ability to go from a strategic view down to actual patient encounters. For this study, a macro approach is required. Unfortunately M2 data is not immediately suitable for DEA analysis so a transformation is required. The basic M2 data is pulled in three consolidated reports called the Full Time Equivalent (FTE), Standard Inpatient Data Record (SIDR) that compiles inpatient data, and the Standard Ambulatory Data Record (SADR) that compiles outpatient data. Each of these reports aggregates the data and organizes it by fiscal quarters for each hospital. The following sections describe the data transformation.

1. Manpower Data

In a medical setting, doctors do not spend all day, every day, in the same clinic. Their time is broken up in different clinics doing all sorts of tasks to include research, treating patients, and administrative tasks. A clinic manager can capture the aggregate amount of manpower used in a clinic by calculating a measure called *full-time equivalent*

(FTE). The FTE is the number of hours one full-time person would be expected to work in a clinic for a month. This equates to 168 hours (avg. 21 days/month * 8 hours). For example, if 6 doctors each spent 28 hours a month in a clinic it would be equal to one FTE. In this analysis we select "available" versus "assigned" FTE. Available FTE includes military, civilians, borrowed, and contracted employees who are physically present and ready to work. Assigned FTE would include people such as physician-administrators and deployed military which increase FTE but do not contribute to workload because they are not physically available in the clinic.

The data presented in the M2 Consolidated FTE report comes in the following format shown in Table 1.

Fiscal Quarter(3)	Tmt Parent DMIS ID Name(Query 3 w/ ARSBSP2)	MEPRS Group Code(3)	Avail. **RN** FTEs	Avail. **Prof** FTEs	Avail. **Admin** FTEs	Avail. **Clinician** FTEs	Avail. **Int/Res** FTEs	Avail. **Oth Clin** FTEs	Avail. **Para-Prof** FTEs
1st Qtr FY05	HOSPITAL X	SADR	3	5.66	5.58	9.41	0	9.41	8.51
2nd Qtr FY05	HOSPITAL X	SADR	2.89	6.54	4.35	8	0	8	10.09
3rd Qtr FY05	HOSPITAL X	SADR	2.95	5.81	5.17	6.43	0	6.43	8.78
4th Qtr FY05	HOSPITAL X	SADR	2.21	4.61	2.36	5.6	0	5.6	8.9
1st Qtr FY05	HOSPITAL X	SIDR	26.49	1.53	2.02	3.18	0	3.18	10.81
2nd Qtr FY05	HOSPITAL X	SIDR	28.76	1.74	2.02	3.05	0	3.05	12.03
3rd Qtr FY05	HOSPITAL X	SIDR	30.92	2.31	1.79	3.79	0	3.79	15.02
4th Qtr FY05	HOSPITAL X	SIDR	26.72	2.51	1.03	2.83	0	2.83	19.49

Table 1. M2 Full Time Equivalents.

The first column of Table 1 presents the quarters of the fiscal year (FY). In the Department of Defense the fiscal year runs from September 1st to October 31st. The second column is the treatment (Tmt) parent which is simply the name of the hospital. It is called treatment parent because it is the name of the main facility and it includes data from all of its branch clinics. The third column denotes which clinic the data came from i.e. the data of the outpatient clinic is called the Standard Ambulatory Data Record (SADR) and the data of the inpatient clinic is called the Standard Inpatient Data Record (SIDR). The rest of the columns consist of a count of the available personnel. It should be noted that these numbers are the cumulative result of all activity during a three month quarter. For example, the three RNs used in the outpatient clinic (SADR) during the first quarter of 2005 is actually reporting one FTE per month summed for the three months

which results in three available FTEs. To avoid triple counting it is necessary to determine the average FTE used per month. To do this the FTE numbers are added together and divided by 12 (three months per quarter*four quarters per year) resulting in the average number of FTEs used per year. Table 2 demonstrates how the Registered Nurses (RN) FTEs are calculated for both inpatient and outpatient clinics.

Fiscal Quarter	Available RN FTEs	AVG YEARLY RN FTE
1st Qtr FY05	3	
2nd Qtr FY05	2.89	= 11.05/12=.92 SADR
3rd Qtr FY05	2.95	
4th Qtr FY05	2.21	
1st Qtr FY05	26.49	
2nd Qtr FY05	28.76	=112.89/12= 9.4 SIDR
3rd Qtr FY05	30.92	
4th Qtr FY05	26.72	

Table 2. FTE Calculations.

The methodology used to compute the SIDR and SADR FTEs is used for all manpower categories. It should also be noted that there are seven columns of FTE data in Table 1 but only five are in the analysis. This is because "Available Clinician FTE" is actually a sum of "Available Interns/Residents FTE" and "Available Other Clinician FTE". In this analysis we use "Available Clinician FTE" since it includes the presence of interns which undoubtedly has some impact on clinical operations.

A break down of the types of professionals in each category is provided in the following list.

Clinician

- Physician (includes physicians holding an administrative position)
- Interns
- Fellows

Direct Care Professional

- Physician Assistant
- Nurse Practitioner
- Nurse Midwife
- Nurse Anesthetist
- Community Health Nurse

- Clinical Nurse Specialist
- All others in Skill Type 2

Registered Nurse
- Registered Nurse
- All other in Skill Type 3

Direct Care Para-Professional
- Licensed Vocational Nurse/LPN
- Nursing Assistant
- Corpsmen
- All others in Skill Type 4

Administrative
- Administrators
- Logistics
- Clerical
- All others in Skill Type 5

2. Costs

Determining the cost of health care in an organization the size of the Department of Defense is a difficult task. There are numerous ways to calculate the costs and they vary depending on who you talk to and what level of the organization they are in. Despite these obstacles this analysis utilizes cost data from M2 so that there is consistency in the data. This analysis uses direct costs exclusively. Direct costs include all of the following, except clinician salaries wherever applicable.[3] Clinician salaries are compiled in another category that was not available for this analysis.

- Civilian Personnel Compensation
- Readiness Labor
- Reserves Personnel Compensation
- Military Personnel compensation
- Travel and Transport of Things
- Contract Health Care
- Purchase Maintenance Equipment

[3] Clinician salary data is normally available but was not specifically requested for this study so it was not included in the data pull. Future studies should include clinician salaries.

- Medical Supplies
- Medical Equipment

Though variable costs are available they are often outside the clinic manager's control and therefore have little use in this analysis. For example, variable costs include services like maintenance and janitorial services that are assigned a percentage based on the square footage of the clinic. Clinic managers can not control these costs therefore it is unreasonable to judge their performance on them.

In a similar fashion to FTE data, cost data is organized by fiscal year (FY) quarters. The second column is the parent facilities name that includes all the costs of its subordinate clinics. The third column has the cumulative cost for the quarter. The last column is a summation of the different clinics.

Fiscal Quarter(2)	Tmt Parent DMIS ID Name(Query 2 with ARSBSP2)	Full Cost Direct, Total	FY05 Full Cost Direct, Total SIDR
1st Qtr FY05	HOSPITAL X-SIDR	$396,716.47	
2nd Qtr FY05	HOSPITAL X-SIDR	$325,067.97	
3rd Qtr FY05	HOSPITAL X-SIDR	$295,068.53	
4th Qtr FY05	HOSPITAL X-SIDR	$363,095.06	$1,379,948.03
Fiscal Quarter	Tmt Parent DMIS ID Name(Query 1 with ARSBSP2)	Full Cost, Total	FY05 Full Cost, Total SADR
1st Qtr FY05	HOSPITAL X-SADR	$673,664.46	
2nd Qtr FY05	HOSPITAL X-SADR	$673,818.26	
3rd Qtr FY05	HOSPITAL X-SADR	$699,178.95	
4th Qtr FY05	HOSPITAL X-SADR	$646,522.25	$2,693,183.92

Table 3. Outpatient (SADR) Cost Data Transformation

To actually determine how these figures are generated one needs to refer to the M2 Data Dictionary (EI/DS, 2005) which defines all of the fields available in the M2 database. The computation process of the SIDR and SADR costs is different for the inpatient and outpatient data. An excerpt from the M2 Data Dictionary is included in Table 4 for illustration purposes. In true military fashion it is full of acronyms and abbreviations. In simple terms, the first column describes the name of the data field. M2 uses software called Business Objects so the column is titled as *object*. The second column provides a definition of how the costs are computed and the changes that occur

over the years. The Format column explains how the field is set up in the software. For example, N(9,2) refers to it being a number field with room for nine digits and two decimal places. The last column expands and clarifies information listed in the definition.

Object	Definition	Format	Values	Notes
MEASURES				
Full Cost, Raw	FY03+: Same APG-based full costs as described below for FY99+ except clinician salary allocated based on Organizational Work RVU using a DMIS-wide cost per RVU. FY99+: APG-based full cost, calculated using the MTF-wide average (across all work centers in that MTF) for APG full costs. (discounting applied) FY98: Not populated.	N(9,2)		FY03+ derived by adding discounted (100% for highest weighted APG, 50% for remaining) APG costs (keeping only the higher weighted E&M or Medical APG, not both) to the Organizational Work RVU derived clinician salary. FY05+ based on FY04 MEPRS expenses, adjusted for inflation. FY99-FY04 based on their respective MEPRS expenses.
Full Cost, Total	Full Cost, Raw estimated to completion.	N(9,2)		Calculated by dividing Completion Factor into Full Cost, Raw.

Table 4. Explanation of Outpatient Cost Computation (Extracted from M2 Data Dictionary).

What is important from Table 4 is that the unit cost data for 2005 are calculated using 2004 figures adjusted for inflation. This means that at the time the data was pulled, May 2006, the data in M2 is not actual FY05 data. Instead it is FY04 data adjusted for inflation. Table 5 below is similar to Table 4 with the same caveats as mentioned previously.

Object	Definition	Format	Values	Notes
		MEASURES		
Full Cost Direct, Raw	Direct (less Clinician Salary) portion of full cost.	Decimal (9,2)		FY03-FY04 unit costs based on respective FY MEPRS expenses. FY05+ unit costs based on FY04 MEPRS expenses, with FY05+ adjusted for inflation. Populated for FY03+ only.
Full Cost Direct, Total	Full Cost Direct, Raw estimated to completion.	Decimal (9,2)		Calculated by dividing Completion Factor into Full Cost Direct, Raw.

Table 5. Explanation of Inpatient Cost Computation (Extracted from M2 Data Dictionary).

Determining cost data is one of the areas where there could be a lot of disagreement on which numbers to use. The intention of this analysis is to use the numbers from a widely recognized repository of data that provides all of the information required for this study. If DEA were implemented across the DoD it is expected that a timelier and common source of data would be used or developed.

3. Workload

In previous research related to military healthcare, one of the measures of workload is the number of patients treated at a facility. Though this data is readily available it can lead to problems because the complexity can differ between visits. If this number is used to evaluate performance, abuses could occur as patients with multiple concerns are rescheduled for multiple visits thereby giving the perception of increased workload. In this study we use a Department of Defense metric called Relative Value Unit (RVU) and Relative Weighted Product (RWP) which take into consideration the number of visits and the complexity of the case.

RVUs, which is a measure of outpatient workload, is calculated by coding each service a doctor performs based on the time required to perform the service, technical skill, and mental effort of a doctor. RWPs are very similar but they are a measurement of inpatient care. The codes and the values associated with each service are based on a nationally recognized scale that is used across the different military branches.

C. DEA METHODOLOGY

In Chapter II there is a simple example of how DEA works. In this section we look at the particular models used in this study and explain the rational for their selection.

DEA is not a single formula but rather a body of concepts and methodologies that have been incorporated in a collection of models with their own interpretive possibilities (Cooper et al, 1994). The original DEA model was developed in 1978 by Charnes, Cooper, and Rhodes and has since been referred to as the CCR model. In this paper we will refer to it as the CRS model because of its trait of constant returns to scale. This model gives an objective evaluation of overall efficiency, identifies the sources, and estimates the amounts of previously identified inefficiencies (Cooper et al., 1994). The formulation is provided below.

$$
\begin{aligned}
&DEA\text{-}CRS\ Model\\
&Indicies:\\
&i = Output\ Types\ (1, 2, ..., i)\\
&j = Input\ Types\ (1, 2, ..., j)\\
&m = DMUs\ (1, 2, ..., m)\\
&Data:\\
&x_{im} = Value\ of\ input\ i\ for\ DMU\ m\\
&y_{jm} = Value\ of\ output\ j\ for\ DMU\ m\\
&Variables:\\
&v_i = Weight\ on\ input\ i\\
&w_j = weight\ on\ output\ j\\
&Max\ e_o = \sum_{j=1}^{s} w_j y_{jo}\\
&subject\ to:\\
&\sum_{i=1}^{r} v_i x_{im} - \sum_{j=1}^{s} w_j y_m \geq 0;\\
&m = 1, 2, ..., n\\
&\sum_{i=1}^{r} v_i x_{io} = 1\\
&w_j \geq 0;\ j = 1, 2, ..., s\\
&v_i \geq 0; i = 1, 2, ..., r
\end{aligned}
$$

CRS DEA Model Formulation (From: Norman, 1991, p. 236)

This model is characterized by constant return to scale (CRS) which implies that DMUs are able to linearly scale the inputs and outputs without increasing or decreasing efficiency. In our scenario this means that large hospitals should have the same ratio of inputs to outputs as a small hospital.

In 1984, another model was developed to address the return to scale issue since the constant return to scale assumption made in the CRS model is not always appropriate, particularly when the DMUs vary significantly in size. The model is often referred to as the BCC model because it was developed by Banker, Charnes, and Cooper. In this paper it is called the VRS model because of its ability to accept variable returns to scale. The VRS model differentiates between technical and scale inefficiencies by estimating pure technical efficiency at a given scale of operation and identifying whether increasing, decreasing or constant returns to scale possibilities are present (Cooper et al., 1994). In this model a constant is added to allow variable returns to scale that takes into account economies of scale. In our case this means that large hospitals may be able to gain greater output as a function of their size.

DEA-VRS Model
Indicies:
i = Output Types (1,2,...,i)
j = Input Types (1,2,...,j)
m = DMUs (1,2,...,m)
Data:
x_{im} = Value of input i for DMU m
y_{jm} = Value of output j for DMU m
Variables:
v_i = Weight on input i
w_j = weight on output j
c_o = Constant

$$\text{Max } e_o = \sum_{j=1}^{s} w_j y_{jo} + c_o$$

subject to:

$$\sum_{i=1}^{r} v_i x_{im} - \sum_{j=1}^{s} w_j y_m - c_o \geq 0;$$

$$m = 1, 2, ..., n$$

$$\sum_{i=1}^{r} v_i x_{io} = 1$$

$$w_j \geq 0;\ j = 1, 2, ..., s$$

$$v_i \geq 0; i = 1, 2, ..., r$$

VRS DEA Model Formulation (From: Norman, 1991, p. 236)

The two formulations above find the most efficient DMU based on a ratio of input and outputs. The medical community is unique in that they have little control over output. This thesis analyzes the obstetric department whose output is the number of babies delivered. Ideally the results of this analysis are intended to be used by clinic managers to help them improve performance. Given their profession, telling them to increase or decrease output is unrealistic. As a result a modified version of the CRS and VRS methodology called an input oriented model is required for our analysis. This model assumes that output is constant and then adjusts the input to achieve maximum efficiency. The formulation for the two methodologies is provided below.

DEA-Constant Return to Scale (CRS)

Input-Oriented

$$\min \theta - \varepsilon \left(\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+ \right)$$

Subject to:

$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = \theta x_{io}$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - s_i^+ = y_{ro}$$

$$\lambda_j \geq 0$$

$$i = 1, 2, \ldots, m$$

$$r = 1, 2, \ldots, s$$

$$j = 1, 2, \ldots, n$$

Efficient Target:

$$\hat{x}_{io} = \theta^* x_{io} - s_i^{-*}$$

$$\hat{y}_{io} = y_{ro} + s_r^{+*}$$

VRS DEA Model Formulation (From: Cook, 2005, p. 10)

DEA-Variable Return to Scale (VRS)

Input-Oriented

$$\min \theta - \varepsilon \left(\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+ \right)$$

Subject to:

$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = \theta x_{io}$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - s_i^+ = y_{ro}$$

$$\lambda_j \geq 0$$

$$\sum\nolimits_{j=1}^{n} \lambda_j = 1$$

$$i = 1, 2, \ldots, m$$

$$r = 1, 2, \ldots, s$$

$$j = 1, 2, \ldots, n$$

Efficient Target:

$$\hat{x}_{io} = \theta^* x_{io} - s_i^{-*}$$

$$\hat{y}_{io} = y_{ro} + s_r^{+*}$$

VRS DEA Model Formulation (From: Cook, 2005, p. 10)

The main difference between the original and the input-oriented model is the addition of the scalar variable θ and the constant ε, a non-Achimedean (infinitesimal) constant. The presence of the non-Achimedean ε in the objective function basically allows minimization over θ to preempt the optimization of the slacks (Norman, 1991 p.32). These optimization functions are then computed in a two stage process with the first stage having maximal reduction of inputs with θ^*. In the second stage, movement to an efficient frontier is achieved via the slack variables (s^+ and s^-). The nonzero slacks and the value of $\theta^* \leq 1$ identify the sources and the amount of inefficiencies that are present (Norman, 1991 p. 32). In conclusion, there is a growing list of modified forms of DEA but for this analysis we will use an input-oriented model that assumes the output is fixed and focuses on manipulating input levels to achieve the same level of output with minimal input.

D. DEMONSTRATING THE METHOD

Every DEA software package is different so it is important to explain the basics of how the data is input and the results that it produces. For this analysis we are using a software package called DEAFrontier which utilizes Microsoft Excel as its platform. Table 6 presents inpatient input file for DEAFrontier. The name of the *decision making unit* (DMU) (hospital) is shown in the first column. The second column called SIDR RN FTE is the average number of Registered Nurse full-time equivalents (FTE) employed during fiscal year 2005 in the inpatient clinic. The third column shows the SIDR Professional FTE, which is comprised of all the specialties that are licensed to provide care such as, physician assistants, nurse midwife, etc. The fourth column presents the SIDR Administrative FTE which is the average number of administrative people employed in the inpatient clinic. The fifth column contains the SADR Clinician FTE, which is comprised of the average number of doctors, interns, and residents working in the inpatient clinic. The last column of input variable is the costs incurred by the clinic in FY 2005. DEAFrontier requires a space column between the input and output variables which explains the space in Table 6. The last column is the output column which is the summation of all the workload, as measured in RWP, for FY 2005.

Tmt Parent DMIS ID Name(Query 3 with ARSBSP2)	SIDR RN FTE	SIDR PROF FTE	SIDR ADMIN FTE	SIDR CLIN FTE	SIDR PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR		FY05 Simple RWP, Total
ANDREWS AFB - 89TH MED GRP	7.28	0.76	2.68	10.11	9.60	1763752.98		359.33
BROOKE AMC-FT. SAM HOUSTON	4.82	0.00	0.51	3.33	4.92	637043.16		722.96
EGLIN AFB - 96TH MED GRP	4.64	0.13	0.00	2.56	3.39	413209.79		181.07
ELMENDORF - 3RD MED GRP	9.09	1.38	0.00	2.08	8.92	1704863.90		465.11
FT BELVOIR - DEWITT ACH	14.64	0.98	1.62	1.94	10.60	2116776.45		752.37
FT BENNING - MARTIN ACH	14.27	0.00	0.87	1.62	7.52	1300928.73		471.79
FT BRAGG - WOMACK AMC	25.79	4.47	5.82	4.34	17.18	3042181.98		1657.32
FT CAMPBELL - BLANCHFIELD ACH	24.60	3.48	3.20	4.40	17.93	4770771.84		1200.05
FT CARSON - EVANS ACH	26.81	1.25	2.51	2.40	9.24	4312379.05		881.18
FT EUSTIS - MCDONALD ACH	2.09	0.00	0.28	0.29	1.87	208631.00		185.40
FT GORDON - EISENHOWER AMC	1.13	0.13	0.18	1.56	0.66	175389.87		157.70
FT HOOD - DARNALL ACH	29.06	5.48	3.49	4.52	17.09	5613171.01		1590.92
FT IRWIN - WEED ACH	3.40	0.00	0.38	0.57	2.55	443689.78		161.59
FT JACKSON - MONCRIEF ACH	0.35	0.00	0.05	0.09	0.32	62061.44		38.42
FT KNOX - IRELAND ACH	6.03	1.33	0.62	1.40	4.69	1319511.19		360.30
FT LEONARD WOOD - L. WOOD ACH	6.76	0.07	0.28	1.08	3.84	796721.98		279.54
FT POLK - BAYNE-JONES ACH	2.79	0.00	0.09	0.29	1.49	491943.96		165.27
FT RILEY - IRWIN ACH	9.48	1.35	0.54	1.89	5.06	1025614.62		395.22
FT SILL - REYNOLDS ACH	9.39	0.00	0.67	3.98	4.66	1691504.39		536.37
FT STEWART - WINN ACH	16.71	0.53	1.51	2.70	8.87	2261173.75		684.85
FT WAINWRIGHT - BASSETT ACH	9.41	0.67	0.57	1.07	4.78	1379948.03		444.92
KEESLER AFB - 81ST MED GRP	17.27	0.00	0.18	4.66	20.39	809196.12		562.54
LANGLEY AFB - 1ST MED GRP	14.00	0.75	0.72	1.58	12.65	1759945.14		587.34
MADIGAN AMC-FT. LEWIS	18.87	0.28	1.48	1.80	18.57	3027903.70		1472.56
MT HOME AFB - 366TH MED GRP	5.28	0.23	0.00	0.77	4.54	825379.72		171.65
NELLIS AFB - 99TH MED GRP, O'CALLAGHAN	21.20	0.74	0.38	1.02	20.60	591944.68		396.28
NH BEAUFORT	0.32	0.00	0.03	1.01	0.31	157994.98		230.85
NH BREMERTON	7.51	0.82	0.52	3.00	7.45	1308662.57		320.55
NH CAMP LEJEUNE	19.88	4.00	2.32	3.44	21.83	2268260.23		883.62
NH CAMP PENDLETON	17.37	1.47	2.36	4.28	12.74	2819437.18		899.53
NH CHERRY POINT	4.95	1.52	0.28	2.54	5.26	143166.34		249.29
NH GREAT LAKES	0.33	0.00	0.02	0.12	0.32	57112.54		38.64
NH JACKSONVILLE	10.91	2.28	0.98	3.29	10.19	265331.22		148.08
NH LEMOORE	4.53	0.27	0.04	0.59	3.41	727194.58		242.48
NH OAK HARBOR	6.46	0.00	0.11	1.40	3.18	1050734.27		196.47
NH PENSACOLA	8.50	2.35	1.27	4.80	11.44	1155386.85		251.36
NH TWENTYNINE PALMS	10.14	0.93	0.59	0.99	12.97	2101660.79		192.37
NMC PORTSMOUTH	48.36	6.49	6.02	4.11	39.89	5485192.17		3326.45
NMC SAN DIEGO	41.99	8.40	6.35	10.25	28.56	10239103.73		2697.56
NNMC BETHESDA	31.80	13.19	2.27	2.57	34.75	2451189.33		1333.05
OFFUTT AFB - 55TH MED GRP	4.32	0.14	0.48	1.52	4.47	573433.21		189.94
SCOTT AFB - 375TH MED GRP	1.05	0.00	0.16	0.19	1.69	108501.62		65.85
TRAVIS AFB - 60TH MED GRP	5.42	0.03	0.54	9.46	4.14	1099526.46		416.54
TRIPLER AMC-FT SHAFTER	40.79	1.54	3.04	13.11	27.81	7111043.07		1830.41
WALTER REED AMC-WASHINGTON DC	6.38	0.05	0.66	0.77	7.56	1274739.46		745.20
WEST POINT - KELLER ACH	6.27	0.00	0.46	0.52	2.42	539650.98		117.99
WILFORD HALL - 59TH MED WING, LACKLAN	18.46	0.00	1.03	2.08	15.28	4255637.05		1230.14
WILLIAM BEAUMONT AMC-FT. BLISS	12.56	2.02	1.66	1.43	15.11	211633.29		487.55
WRIGHT PATTERSON - 74TH MED GRP	10.81	0.00	0.57	3.02	16.78	1015977.19		447.56

Table 6. Inpatient Clinical Data for Inpatient Clinic-CRS model

The next step in the computation phase is to select the variation of the DEA model. In this case we select *input-oriented model*, first with *constant returns to scale (CRS)*. We choose an input-oriented model because clinic managers can only control the inputs of the clinic. We select the CRS model because we initially want to see how the

hospitals perform regardless of the scale of their operations. DEAFrontier creates three MS Excel reports titled “Efficiency”, “Slack”, and “Target”. The “Efficiency” report for the inpatient data is shown below in Table 7.

Inputs
SIDR AVG YEARLY RN FTE
SIDR AVG YEARLY PROF FTE
SIDR AVG YEARLY ADMIN FTE
SIDR AVG YEARLY CLIN FTE
SIDR AVG YEARLY PARA-PROF FTE
FY05 Full Cost Direct, Total SIDR

Outputs
FY05 Simple RWP, Total

DMU No.	DMU Name	Input-Oriented CRS Efficiency	Σλ	RTS	Benchmarks	
1	ANDREWS AFB - 89TH MED GRP	0.14550	1.564	Decreasing	0.164	FT EUSTIS - MCDONALD ACH
2	BROOKE AMC-FT. SAM HOUSTON	0.85503	3.252	Decreasing	0.610	FT EUSTIS - MCDONALD ACH
3	EGLIN AFB - 96TH MED GRP	1.00000	1.000	Constant	1.000	EGLIN AFB - 96TH MED GRP
4	ELMENDORF - 3RD MED GRP	1.00000	1.000	Constant	1.000	ELMENDORF - 3RD MED GRP
5	FT BELVOIR - DEWITT ACH	0.61569	1.384	Decreasing	0.542	NH BEAUFORT
6	FT BENNING - MARTIN ACH	0.57145	2.565	Decreasing	1.518	FT EUSTIS - MCDONALD ACH
7	FT BRAGG - WOMACK AMC	0.75206	4.195	Decreasing	0.867	FT EUSTIS - MCDONALD ACH
8	FT CAMPBELL - BLANCHFIELD ACH	0.52289	2.561	Decreasing	1.378	NH BEAUFORT
9	FT CARSON - EVANS ACH	0.72750	1.936	Decreasing	1.091	NH BEAUFORT
10	FT EUSTIS - MCDONALD ACH	1.00000	1.000	Constant	1.000	FT EUSTIS - MCDONALD ACH
11	FT GORDON - EISENHOWER AMC	0.60638	0.669	Increasing	0.656	NH BEAUFORT
12	FT HOOD - DARNALL ACH	0.70556	3.520	Decreasing	2.007	NH BEAUFORT
13	FT IRWIN - WEED ACH	0.55320	0.876	Increasing	0.553	FT EUSTIS - MCDONALD ACH
14	FT JACKSON - MONCRIEF ACH	0.97233	0.198	Increasing	0.158	FT EUSTIS - MCDONALD ACH
15	FT KNOX - IRELAND ACH	0.55310	0.843	Increasing	0.521	NH BEAUFORT
16	FT LEONARD WOOD - L. WOOD ACH	0.57037	0.802	Increasing	0.141	FT POLK - BAYNE-JONES ACH
17	FT POLK - BAYNE-JONES ACH	1.00000	1.000	Constant	1.000	FT POLK - BAYNE-JONES ACH
18	FT RILEY - IRWIN ACH	0.50628	1.022	Decreasing	0.712	NH BEAUFORT
19	FT SILL - REYNOLDS ACH	0.46491	2.642	Decreasing	0.032	FT EUSTIS - MCDONALD ACH
20	FT STEWART - WINN ACH	0.55122	1.619	Decreasing	1.014	NH BEAUFORT
21	FT WAINWRIGHT - BASSETT ACH	0.75251	0.908	Increasing	0.451	NH BEAUFORT
22	KEESLER AFB - 81ST MED GRP	0.51399	2.470	Decreasing	0.071	FT EUSTIS - MCDONALD ACH
23	LANGLEY AFB - 1ST MED GRP	0.58177	1.175	Decreasing	0.288	NH BEAUFORT
24	MADIGAN AMC-FT. LEWIS	0.86409	2.061	Decreasing	0.126	NH LEMOORE
25	MT HOME AFB - 366TH MED GRP	1.00000	1.000	Constant	1.000	MT HOME AFB - 366TH MED GRP
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	0.84120	1.282	Decreasing	0.520	FT EUSTIS - MCDONALD ACH
27	NH BEAUFORT	1.00000	1.000	Constant	1.000	NH BEAUFORT
28	NH BREMERTON	0.29536	0.935	Increasing	0.711	NH BEAUFORT
29	NH CAMP LEJEUNE	0.46051	3.976	Decreasing	3.287	FT EUSTIS - MCDONALD ACH
30	NH CAMP PENDLETON	0.48164	2.223	Decreasing	1.472	NH BEAUFORT
31	NH CHERRY POINT	1.00000	1.000	Constant	1.000	NH CHERRY POINT
32	NH GREAT LAKES	0.95627	0.194	Increasing	0.041	FT EUSTIS - MCDONALD ACH
33	NH JACKSONVILLE	0.29880	0.464	Increasing	0.175	NH BEAUFORT
34	NH LEMOORE	1.00000	1.000	Constant	1.000	NH LEMOORE
35	NH OAK HARBOR	0.48957	0.964	Increasing	0.399	FT POLK - BAYNE-JONES ACH
36	NH PENSACOLA	0.17686	1.143	Decreasing	0.439	FT EUSTIS - MCDONALD ACH
37	NH TWENTYNINE PALMS	0.24691	0.351	Increasing	0.138	NH LEMOORE
38	NMC PORTSMOUTH	0.94317	8.042	Decreasing	4.763	FT EUSTIS - MCDONALD ACH
39	NMC SAN DIEGO	0.62429	6.860	Decreasing	4.694	NH BEAUFORT
40	NNMC BETHESDA	0.72675	5.148	Decreasing	4.379	FT EUSTIS - MCDONALD ACH
41	OFFUTT AFB - 55TH MED GRP	0.33385	0.853	Increasing	0.481	FT EUSTIS - MCDONALD ACH
42	SCOTT AFB - 375TH MED GRP	0.65517	0.348	Increasing	0.318	FT EUSTIS - MCDONALD ACH
43	TRAVIS AFB - 60TH MED GRP	0.25890	1.801	Decreasing	1.797	NH BEAUFORT
44	TRIPLER AMC-FT SHAFTER	0.37770	5.197	Decreasing	3.971	NH BEAUFORT
45	WALTER REED AMC-WASHINGTON DC	1.00000	1.000	Constant	1.000	WALTER REED AMC-WASHINGTON DC
46	WEST POINT - KELLER ACH	0.42878	0.662	Increasing	0.279	FT EUSTIS - MCDONALD ACH
47	WILFORD HALL - 59TH MED WING, LACKLAND	1.00000	1.000	Constant	1.000	WILFORD HALL - 59TH MED WING, LACKLAND
48	WILLIAM BEAUMONT AMC-FT. BLISS	1.00000	1.000	Constant	1.000	WILLIAM BEAUMONT AMC-FT. BLISS
49	WRIGHT PATTERSON - 74TH MED GRP	0.47367	2.173	Decreasing	0.762	FT EUSTIS - MCDONALD ACH

Table 7. DEAFrontier Efficiency Report for Inpatient Clinic-CRS model

In the first column, DEAFrontier assigns each hospital a number which is followed by the name of the facility. The third column shows the efficiency of the hospitals relative to the others. A score of 1.00 is the highest score and is considered efficient. Scores less than 1.00 indicate the relative efficiency of the hospital. The fourth

column provides the optimal $\sum \lambda^*_j$ which is used to identify the returns to scale (RTS) classifications reported in the fifth column (Cook, W. & Zhu, J., 2005). The benchmarks column gives the efficiency reference set which is comprised of the hospitals that set the benchmark for that particular hospital.[4]

The "slack" report for the inpatients data is shown in Table 8. If a hospital scores a 1.00 then their slack values are 0.00 since they are efficient. The slack sheet is generated based on the efficiency scores and the λ^*_j (Cook, W. & Zhu, J., 2005).

Input-Oriented
CRS Model Slacks

DMU No.	DMU Name	Input Slacks: SIDR AVG YEARLY RN FTE	SIDR AVG YEARLY PROF FTE	SIDR AVG YEARLY ADMIN FTE	SIDR AVG YEARLY CLIN FTE	SIDR AVG YEARLY PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR	Output Slacks: FY05 Simple RWP, Total
1	ANDREWS AFB - 89TH MED GRP	0.00	0.07	0.27	0.00	0.33	0.00	0.00
2	BROOKE AMC-FT. SAM HOUSTON	2.00	0.00	0.19	0.00	2.24	0.00	0.00
3	EGLIN AFB - 96TH MED GRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	ELMENDORF - 3RD MED GRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	FT BELVOIR - DEWITT ACH	3.48	0.56	0.43	0.00	0.00	144776.22	0.00
6	FT BENNING - MARTIN ACH	2.72	0.00	0.00	0.00	0.21	0.00	0.00
7	FT BRAGG - WOMACK AMC	7.94	3.29	3.15	0.00	0.00	0.00	0.00
8	FT CAMPBELL - BLANCHFIELD ACH	4.88	1.76	0.85	0.00	0.00	768173.77	0.00
9	FT CARSON - EVANS ACH	13.77	0.87	1.24	0.00	0.00	1888480.51	0.00
10	FT EUSTIS - MCDONALD ACH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	FT GORDON - EISENHOWER AMC	0.32	0.05	0.07	0.26	0.00	0.00	0.00
12	FT HOOD - DARNALL ACH	10.22	3.79	1.41	0.00	0.00	1714509.44	0.00
13	FT IRWIN - WEED ACH	0.04	0.00	0.03	0.00	0.00	0.00	0.00
14	FT JACKSON - MONCRIEF ACH	0.00	0.00	0.01	0.00	0.00	21104.98	0.00
15	FT KNOX - IRELAND ACH	1.12	0.72	0.12	0.00	0.00	236936.38	0.00
16	FT LEONARD WOOD - L. WOOD ACH	1.62	0.00	0.00	0.00	0.02	0.00	0.00
17	FT POLK - BAYNE-JONES ACH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	FT RILEY - IRWIN ACH	2.60	0.67	0.05	0.00	0.00	11873.93	0.00
19	FT SILL - REYNOLDS ACH	0.75	0.00	0.16	0.00	0.00	0.00	0.00
20	FT STEWART - WINN ACH	5.03	0.26	0.41	0.00	0.00	315093.46	0.00
21	FT WAINWRIGHT - BASSETT ACH	4.02	0.48	0.12	0.00	0.00	384195.35	0.00
22	KEESLER AFB - 81ST MED GRP	7.80	0.00	0.00	0.00	9.52	0.00	0.00
23	LANGLEY AFB - 1ST MED GRP	2.91	0.33	0.00	0.00	1.72	0.00	0.00
24	MADIGAN AMC-FT. LEWIS	3.40	0.11	0.00	0.00	1.00	57938.87	0.00
25	MT HOME AFB - 366TH MED GRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	NELLIS AFB - 99TH MED GRP, O'CALLAGH	15.04	0.61	0.00	0.00	14.37	0.00	0.00
27	NH BEAUFORT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	NH BREMERTON	0.60	0.23	0.00	0.00	0.37	0.00	0.00
29	NH CAMP LEJEUNE	0.71	1.83	0.00	0.00	2.07	0.00	0.00
30	NH CAMP PENDLETON	3.11	0.67	0.60	0.00	0.00	168008.13	0.00
31	NH CHERRY POINT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	NH GREAT LAKES	0.02	0.00	0.00	0.00	0.10	0.00	0.00
33	NH JACKSONVILLE	0.64	0.17	0.00	0.24	0.00	0.00	0.00
34	NH LEMOORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	NH OAK HARBOR	1.87	0.00	0.00	0.00	0.79	228947.96	0.00
36	NH PENSACOLA	0.00	0.36	0.03	0.00	0.55	0.00	0.00
37	NH TWENTYNINE PALMS	0.52	0.18	0.00	0.00	1.12	146683.26	0.00
38	NMC PORTSMOUTH	14.75	5.96	2.21	0.00	3.95	0.00	0.00
39	NMC SAN DIEGO	10.91	5.14	2.41	0.00	0.00	2889645.72	0.00
40	NNMC BETHESDA	9.66	9.55	0.00	0.00	11.99	0.00	0.00
41	OFFUTT AFB - 55TH MED GRP	0.14	0.05	0.00	0.00	0.27	0.00	0.00
42	SCOTT AFB - 375TH MED GRP	0.01	0.00	0.02	0.00	0.51	0.00	0.00
43	TRAVIS AFB - 60TH MED GRP	0.79	0.00	0.08	0.63	0.46	0.00	0.00
44	TRIPLER AMC-FT SHAFTER	6.32	0.52	0.23	0.00	0.00	495499.57	0.00
45	WALTER REED AMC-WASHINGTON DC	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	WEST POINT - KELLER ACH	1.15	0.00	0.09	0.00	0.00	0.00	0.00
47	WILFORD HALL - 59TH MED WING, LACK	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	WILLIAM BEAUMONT AMC-FT. BLISS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	WRIGHT PATTERSON - 74TH MED GRP	2.34	0.00	0.00	0.00	5.73	0.00	0.00

Table 8. DEAFrontier Slack Report for Inpatient Clinic-CRS model

[4] Due to the size of the MS Excel sheet only one benchmark hospital is shown.

The final report produced by DEAFrontier is the "Target" report shown in Table 9.

Input-Oriented
CRS Model Target

DMU No.	DMU Name	Efficient Input Target SIDR RN FTE	SIDR PROF FTE	SIDR ADMIN FTE	SIDR CLIN FTE	SIDR PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR	Efficient Output Target FY05 Simple RWP, Total
1	ANDREWS AFB - 89TH MED GRP	1.05896	0.04451	0.12198	1.47084	1.06983	256617.57810	359.32960
2	BROOKE AMC-FT. SAM HOUSTON	2.11919	0.00000	0.24539	2.84298	1.96680	544692.67189	722.95590
3	EGLIN AFB - 96TH MED GRP	4.63667	0.12667	0.00000	2.56083	3.39417	413209.79000	181.06990
4	ELMENDORF - 3RD MED GRP	9.09333	1.38000	0.00000	2.08333	8.91750	1704863.90000	465.10610
5	FT BELVOIR - DEWITT ACH	5.53891	0.04278	0.56846	1.19239	6.52836	1158500.91401	752.36550
6	FT BENNING - MARTIN ACH	5.43992	0.00000	0.49812	0.92528	4.08502	743418.45637	471.79270
7	FT BRAGG - WOMACK AMC	11.44999	0.07197	1.22461	3.26456	12.91662	2287900.69116	1657.32440
8	FT CAMPBELL - BLANCHFIELD ACH	7.98581	0.06016	0.81738	2.29809	9.37320	1726404.04338	1200.05370
9	FT CARSON - EVANS ACH	5.73184	0.04292	0.58630	1.74904	6.72091	1248783.54187	881.17600
10	FT EUSTIS - MCDONALD ACH	2.09083	0.00000	0.27583	0.28667	1.87000	208631.00000	185.39750
11	FT GORDON - EISENHOWER AMC	0.37205	0.02617	0.04066	0.68089	0.40072	106353.74636	157.70420
12	FT HOOD - DARNALL ACH	10.28775	0.07691	1.05213	3.18619	12.05978	2245919.35036	1590.92290
13	FT IRWIN - WEED ACH	1.84306	0.00000	0.17664	0.31348	1.41249	245447.30990	161.59010
14	FT JACKSON - MONCRIEF ACH	0.34356	0.00000	0.04482	0.08508	0.30833	39239.06641	38.42400
15	FT KNOX - IRELAND ACH	2.21977	0.01637	0.22669	0.77296	2.59634	492883.65946	360.29660
16	FT LEONARD WOOD - L. WOOD ACH	2.24125	0.03802	0.15780	0.61648	2.17577	454429.81076	279.53690
17	FT POLK - BAYNE-JONES ACH	2.78833	0.00000	0.09167	0.28500	1.48750	491943.96000	165.27380
18	FT RILEY - IRWIN ACH	2.20228	0.01575	0.22418	0.95645	2.56305	507376.43805	395.22060
19	FT SILL - REYNOLDS ACH	3.61602	0.00000	0.15372	1.84803	2.16805	786404.38868	536.37030
20	FT STEWART - WINN ACH	4.18042	0.03075	0.42680	1.48736	4.88745	931301.59749	684.84500
21	FT WAINWRIGHT - BASSETT ACH	3.05973	0.02325	0.31346	0.80581	3.59635	654223.66438	444.91690
22	KEESLER AFB - 81ST MED GRP	1.07825	0.00000	0.09380	2.39474	0.96086	415915.21997	562.53740
23	LANGLEY AFB - 1ST MED GRP	5.23540	0.10688	0.41790	0.92064	5.63865	1023875.42675	587.33600
24	MADIGAN AMC-FT. LEWIS	12.90939	0.13268	1.27525	1.55608	15.05155	2558439.22237	1472.55660
25	MT HOME AFB - 366TH MED GRP	5.28333	0.22833	0.00000	0.77417	4.54083	825379.72000	171.65320
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAI	2.78969	0.01224	0.31685	0.86012	2.95559	497941.02634	396.27980
27	NH BEAUFORT	0.31917	0.00000	0.02917	1.01000	0.31250	157994.98000	230.84570
28	NH BREMERTON	1.61724	0.01608	0.15482	0.88607	1.82837	386521.57259	320.55250
29	NH CAMP LEJEUNE	8.44816	0.01137	1.06723	1.58377	7.98311	1044556.58709	883.61570
30	NH CAMP PENDLETON	5.25814	0.03818	0.53610	2.06223	6.13450	1189947.64918	899.52710
31	NH CHERRY POINT	4.94750	1.52000	0.28083	2.54167	5.26000	143166.34000	249.29040
32	NH GREAT LAKES	0.29664	0.00000	0.01992	0.11874	0.20179	54614.95897	38.63650
33	NH JACKSONVILLE	2.62221	0.51363	0.29258	0.74520	3.04555	79281.79622	148.07970
34	NH LEMOORE	4.53083	0.27167	0.03667	0.58750	3.41417	727194.58000	242.48220
35	NH OAK HARBOR	1.29193	0.00000	0.05304	0.68499	0.76967	285460.91423	196.47270
36	NH PENSACOLA	1.50313	0.05947	0.18973	0.84876	1.47674	204337.04045	251.36230
37	NH TWENTYNINE PALMS	1.98524	0.04837	0.14506	0.24444	2.08251	372228.07457	192.36690
38	NMC PORTSMOUTH	30.86398	0.16668	3.46687	3.87642	33.68143	5173462.57423	3326.45290
39	NMC SAN DIEGO	15.30739	0.11010	1.55916	6.39950	17.83183	3502535.05166	2697.56190
40	NNMC BETHESDA	13.44930	0.03397	1.64972	1.86835	13.27017	1781400.89238	1333.04730
41	OFFUTT AFB - 55TH MED GRP	1.29938	0.00147	0.16164	0.50661	1.22509	191439.73302	189.93620
42	SCOTT AFB - 375TH MED GRP	0.67489	0.00000	0.08865	0.12121	0.60441	71086.70073	65.85440
43	TRAVIS AFB - 60TH MED GRP	0.61654	0.00690	0.05810	1.82005	0.61327	284670.25272	416.54010
44	TRIPLER AMC-FT SHAFTER	9.08449	0.06232	0.92092	4.95005	10.50473	2190328.98821	1830.41360
45	WALTER REED AMC-WASHINGTON DC	6.37583	0.05083	0.65667	0.76583	7.55583	1274739.46000	745.19650
46	WEST POINT - KELLER ACH	1.53921	0.00000	0.10930	0.22189	1.03836	231391.19067	117.98650
47	WILFORD HALL - 59TH MED WING, LACKLAI	18.46000	0.00000	1.02500	2.07917	15.28417	4255637.05000	1230.13780
48	WILLIAM BEAUMONT AMC-FT. BLISS	12.55750	2.01917	1.66167	1.43083	15.10667	211633.29000	487.55070
49	WRIGHT PATTERSON - 74TH MED GRP	2.77815	0.00000	0.26999	1.42813	2.21569	481242.06305	447.55890

Table 9. DEAFrontier Target Report for Inpatient Clinic-CRS model

This table shows the target value for each input that a inefficient hospital would have to reach in order to become efficient. The target numbers are calculated by first reducing all input variables by the efficiency level shown in the "Efficiency" report in Table 7. For example if a hospital is .90 efficient then the first step towards improvement is to reduce all input variables by 10%. The next step is to reduce the variables further by removing the slack found in Table 8. The end result is the values found in the "Target" report. For example, DMU number 24 is Madigan Army

Community Hospital. Their efficiency score is .86 so in order to become efficient they need to reduce all input variables by 14%. This means for example, that for registered nurses (RN FTE) we need to multiply the current number of 18.87 by .86409 which gives us 16.2967. Table 7 is the "Slack" report and it suggests that we also need to cut 3.40 slack FTE. By making this cut we achieve the target shown in Table 9.

E. APPLYING THE CRS & VRS MODELS TO OUTPATIENT DATA

There are generally two phases of care provided to expectant mothers. The first is *outpatient care* where routine visits and check-ups are provided to pregnant women. Routine care for non pregnant woman may occur in the same clinic but the workload is coded differently and therefore is not captured in this analysis. All of these evaluations usually occur in a separate area from the *inpatient care* where expectant mothers are admitted for longer durations—eventually leading to childbirth. Since the two aspects of care are intertwined, yet managed separately, we conduct a separate analysis for both clinics.

We begin by taking the 49 hospitals and applying the constant return to scale (CRS) model. This results in 11 of the 49 hospitals ending up on the efficient frontier which means they have a score of 1.00. The average score of all 49 hospitals is .81 with a standard deviation of .11. One of the concerns when conducting efficiency comparisons is the validity of comparing large medical centers to small hospitals. The CRS formulation compares the two equally and implies that workload should proportionally increase or decrease depending on inputs. For example, if a small hospital has five clinician FTEs and produces 50 RVUs then a large hospital with 10 clinician FTEs should be able to produce 100 RVUs. This may not be always the case because of economies of scale. To address this concern we utilize the *variable returns to scale* (VRS) model that takes into account the scale of the operation. Using the VRS model increases the average score to .86 with a standard deviation of .15. The number of hospitals on the frontier also increases from 11 to 20.

To better understand the scope of change between CRS and VRS, it is helpful to view the results on a single graph with a line depicting the improvement in the efficiency rating as shown below in Figure 4. We can see that a hospital can only improve its standing when moving from a CRS model to the VRS model.

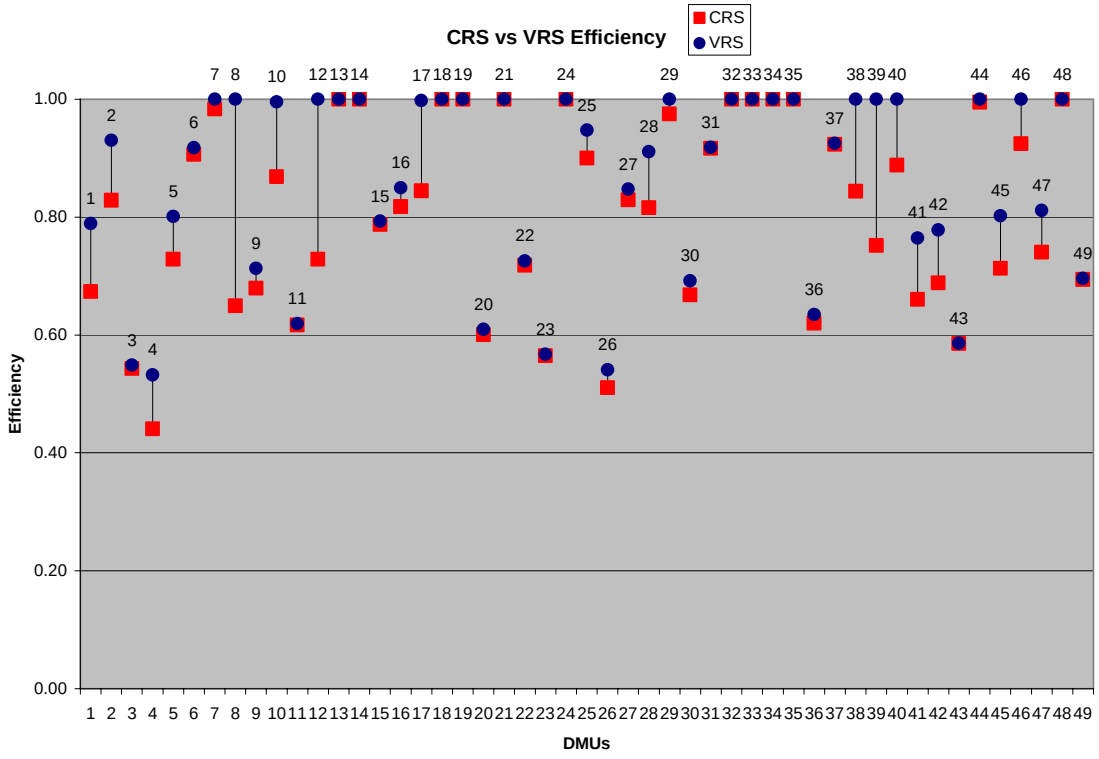

Figure 4. Comparison of Outpatient Data using CRS & VRS Methodology.

The real question is how it impacts the largest hospitals. By looking at the top five largest hospitals we can see that their efficiency scores increase and they become efficient.

DMU	*RVU Workload*	*VRS*	*CRS*
12-FT. Hood	63728.08	100%	73%
24-Madigan AMC	71682.71	100%	100%
38-NMC Portsmouth	129353.92	100%	84%
39- NMC San Diego	98865.47	100%	75%
40-NNMC Bethesda	88083.30	100%	88%

Table 10. Efficiency Comparison using CRS vs. VRS for Outpatient Data

We can conclude from this that the scale of the larger hospitals is a cause of their inefficiency in the CRS model compared to the smaller hospitals.

F. APPLYING THE CRS & VRS MODELS TO INPATIENT DATA

When a woman is admitted to the maternity ward she becomes an *inpatient*. We use the same categories of variables as the outpatient clinic except that workload is now referred to as Relative Weighted Product (RWP). In a similar fashion to the outpatient case, we perform a comparison between CRS and the VRS model.

Computing an input oriented CRS model on the 49 hospitals results in an average score of .66 with a standard deviation of .26. Coincidentally, there are 11 hospitals on the efficiency frontier but they are not the same 11 that are identified in the outpatient clinic analysis. A comparison of the inpatient and outpatient CRS model shows that the inpatient clinic has a lower average score of .66 as compared to .81 and a larger standard deviation of .21 as compared to .11. This implies that there is a lot of unexplained variability in the management of the 49 inpatient clinics.

Applying the VRS model to the inpatient data results in seven additional hospitals moving to the efficient frontier, as depicted in Figure 5. The mean score increases to .75 with a standard deviation of .26. Using the VRS model helped raise the inpatient mean score but it is still lower than the outpatient VRS model that has an average score of .86 and a standard deviation of .15. This confirms that there is some unexplained variability in the inpatient clinic that is unresolved by adjusting for the scale of the operations.

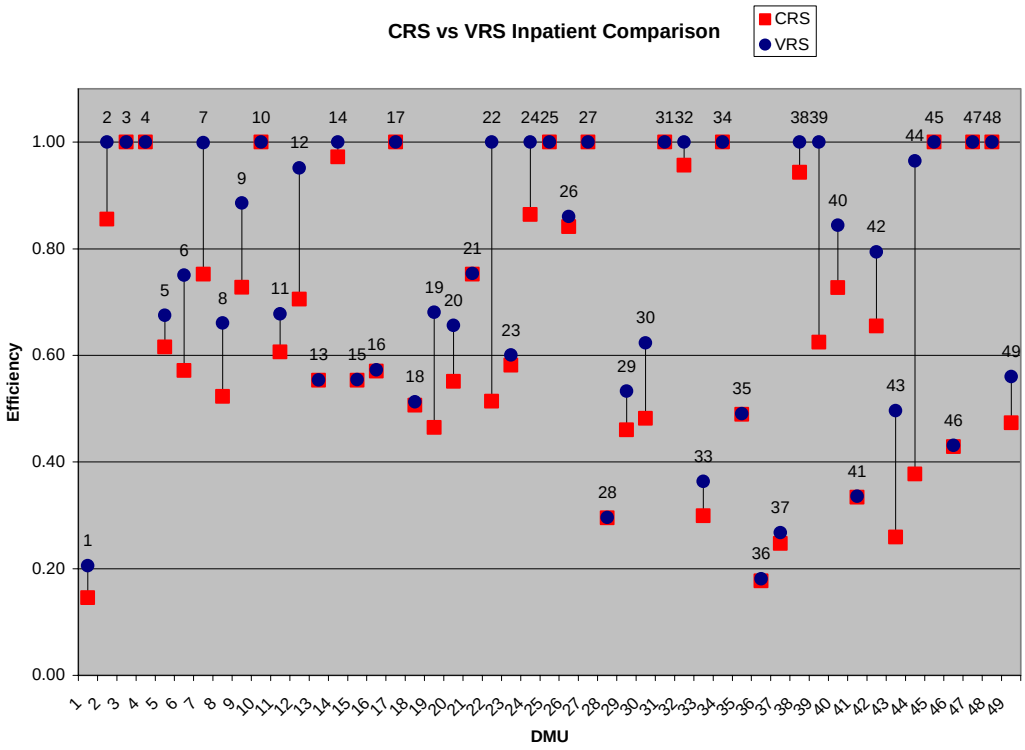

Figure 5. Comparison of Inpatient Data using CRS and VRS Methodology

By looking at the five largest hospitals, as measured by inpatient workload, we see some interesting results as shown in Table 11. First, the largest hospitals, as measured by workload, are different between the inpatient and outpatient clinic. Second, not all of the hospitals reach the efficient frontier but they do improve dramatically as in the case of Tripler Army Medical Center.

DMU	RWP Workload	VRS	CRS
12-FT HOOD - DARNALL ACH	1590.92	95%	71%
7-FT BRAGG - WOMACK AMC	1657.32	100%	75%
44-TRIPLER AMC-FT SHAFTER	1830.41	96%	38%
39-NMC SAN DIEGO	2697.56	100%	62%
38-NMC PORTSMOUTH	3326.45	100%	94%

Table 11. Efficiency Comparison using CRS vs. VRS for Inpatient Data

It is difficult to explain the higher variation found in the inpatient clinics. One hypothesis is that the inpatient clinic is resource intensive and has minimal standardization. Clinic standards of practice can impact efficiency. For example, a

woman who has a cesarean section delivery may remain in the hospital for 2 days following surgery while if treated at another hospital, she may stay 4 days. When computing RWP workload, the credit given for both surgeries will be about the same because it is the same procedure, but this measure of effectiveness (MOE) does not reflect the extra days of hospitalization. The root cause for this variation is outside the scope of this study but it would be beneficial in the actual implementation of DEA efficiency rankings because it may lead to standardization of patient care. The key finding here is that there is unexplained variability and some clinics are significantly less efficient than others. This inefficiency could be indicating that resources are being wasted. This unexplained variability gives decision makers the opportunity to identify the root causes of inefficiency and discover ways to improve.

G. CONCLUSION

The previous sections demonstrated how Data Envelopment Analysis (DEA) works and how different formulations like constant and variable returns-to-scale can affect the results. Based on the objectives of the analysis and the results produced by DEA, it is determined that utilizing the inpatient clinic and applying variable returns to scale is the preferred methodology. The next chapter uses the VRS model for evaluating the efficiency of in military inpatient obstetric care clinics.

IV. ANALYSIS

The primary goal of this thesis is to demonstrate the utility of applying Data Envelopment Analysis (DEA) techniques to improve clinical efficiency and gain some insights regarding the relative efficiency of the various hospitals. In this chapter we evaluate the relative performance of hospitals across the services and geographical regions. We also identify possible courses of improvement for inefficient hospitals.

This analysis utilizes the inpatient data because it is the area that is of most concern for the sponsor, The Director of Resources at Naval Medical Center San Diego. To analyze the inpatient data we are selecting the DEA model with variable returns to scale (VRS) because it takes into account the scale and nature of clinical operations. For example, larger hospitals have increased complexity as a result of their size and they tend to keep the patients with serious problems as opposed to smaller hospitals that might not have the skill sets available so it may refer its patients to other hospitals.

A. INTER-SERVICE COMPARISON

No comparison of military hospitals would be complete without some inter-service competition. The 49 hospitals along with their VRS efficiency scores are broken down in to three sets, one for each service. Based on these scores, it appears that Army performed better than the other services with an average efficiency score of .79 and a standard deviation of .20. One hospital is below .50 efficiency therefore it is highlighted in Table 12.

ARMY HOSPITALS (23)	EFFICIENCY
FT BELVOIR - DEWITT ACH	0.68
FT BENNING - MARTIN ACH	0.75
FT BRAGG - WOMACK AMC	1.00
FT CAMPBELL - BLANCHFIELD ACH	0.66
FT CARSON - EVANS ACH	0.89
FT EUSTIS - MCDONALD ACH	1.00
FT GORDON - EISENHOWER AMC	0.68
FT HOOD - DARNALL ACH	0.95
FT IRWIN - WEED ACH	0.55
FT JACKSON - MONCRIEF ACH	1.00
FT KNOX - IRELAND ACH	0.55
FT LEONARD WOOD - L. WOOD ACH	0.57
FT POLK - BAYNE-JONES ACH	1.00
FT RILEY - IRWIN ACH	0.51
FT SILL - REYNOLDS ACH	0.68
FT STEWART - WINN ACH	0.66
FT WAINWRIGHT - BASSETT ACH	0.75
MADIGAN AMC-FT. LEWIS	1.00
TRIPLER AMC-FT SHAFTER	0.96
WALTER REED AMC-WASHINGTON DC	1.00
WEST POINT - KELLER ACH	0.43
WILLIAM BEAUMONT AMC-FT. BLISS	1.00
BROOKE AMC-FT. SAM HOUSTON	1.00
AVERAGE SCORE	**0.79**
STD DEVIATION	**0.20**

Table 12. Army Inpatient Clinical Efficiency.

The Army is followed by the Air Force which has a .74 average and two hospitals below .50 efficiency, as shown in Table 13.

AIR FORCE HOSPITALS (12)	EFFICIENCY
ANDREWS AFB - 89TH MED GRP	0.21
EGLIN AFB - 96TH MED GRP	1.00
ELMENDORF - 3RD MED GRP	1.00
KEESLER AFB - 81ST MED GRP	1.00
LANGLEY AFB - 1ST MED GRP	0.60
MT HOME AFB - 366TH MED GRP	1.00
NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	0.86
OFFUTT AFB - 55TH MED GRP	0.34
SCOTT AFB - 375TH MED GRP	0.79
TRAVIS AFB - 60TH MED GRP	0.50
WILFORD HALL - 59TH MED WING, LACKLAND	1.00
WRIGHT PATTERSON - 74TH MED GRP	0.56
AVERAGE SCORE	**0.74**
STD DEVIATION	**0.29**

Table 13. Air Force Inpatient Clinical Efficiency.

The Navy came in below the Air Force with a .69 average (S.D. = .32) but had five hospitals below .50 efficiency, as shown in Table 14. It is interesting to note that one of the efficient hospitals is NH Lemoore which was recognized as the "best-of-the-best" in obstetrical care compared to all other military facilities in 2005 (TRICARE News, 2005).

NAVY HOSPITALS (14)	EFFICIENCY
NH BEAUFORT	1.00000
NH BREMERTON	0.29577
NH CAMP LEJEUNE	0.53311
NH CAMP PENDLETON	0.62343
NH CHERRY POINT	1.00000
NH GREAT LAKES	1.00000
NH JACKSONVILLE	0.36371
NH LEMOORE	1.00000
NH OAK HARBOR	0.49076
NH PENSACOLA	0.18071
NH TWENTYNINE PALMS	0.26717
NMC PORTSMOUTH	1.00000
NMC SAN DIEGO	1.00000
NNMC BETHESDA	0.84379
AVERAGE SCORE	**0.69**
STD DEVIATION	**0.32**

Table 14. Navy Inpatient Clinical Efficiency.

While DEA tells us *what* the main causes for inefficiency are, it does not tell us *why*. In the next section we evaluate some theories that might help to explain the inefficiency.

B. REGIONAL CONTRACTORS

The military healthcare system in the continental United States is divided into three TRICARE regions (see Figure 1). Each region is managed by a separate civilian contractor. The contractors' role is to act as the link between hospitals and provide a network of care for the beneficiaries. The relationship between the hospitals and the contractor is mutually beneficial because the contractors profit is tied to the performance of the hospitals in its region. Therefore it is in the best interest of both parties to improve efficiency and to keep as much work as possible in the military healthcare system.

In this analysis we want to determine if there is a difference in the regions and perhaps determine if one region is performing in general better than the others. Tables 15, 16, and 17 present the efficiency scores of hospitals by region. The western region is the largest in terms of geographic size and incorporates the largest number of hospitals as listed in Table 16. The contractor for western region is TriWest Healthcare Alliance.

HOSPITAL	EFFICIENCY	REGION
ELMENDORF - 3RD MED GRP	1.00	West
FT CARSON - EVANS ACH	0.89	West
FT IRWIN - WEED ACH	0.55	West
FT LEONARD WOOD - L. WOOD ACH	0.57	West
FT RILEY - IRWIN ACH	0.51	West
FT WAINWRIGHT - BASSETT ACH	0.75	West
MADIGAN AMC-FT. LEWIS	1.00	West
MT HOME AFB - 366TH MED GRP	1.00	West
NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	0.86	West
NH BREMERTON	0.30	West
NH CAMP PENDLETON	0.62	West
NH LEMOORE	1.00	West
NH OAK HARBOR	0.49	West
NH TWENTYNINE PALMS	0.27	West
NMC SAN DIEGO	1.00	West
OFFUTT AFB - 55TH MED GRP	0.34	West
TRAVIS AFB - 60TH MED GRP	0.50	West
TRIPLER AMC-FT SHAFTER	0.96	West
WILLIAM BEAUMONT AMC-FT. BLISS	1.00	West
MEAN SCORE: .72 ***STD DEVIATION: .27***		

Table 15. Hospital Efficiency in TRICARE Western Region

As we can see from Table 15, the mean efficiency score for the western region is .72 and a standard deviation of .27. From Table 16 we see that the southern region, which is managed by Humana Military Healthcare Services, has a mean score of .80 with a standard deviation of .27.

HOSPITAL	EFFICIENCY	REGION
BROOKE AMC-FT. SAM HOUSTON	1.00	South
EGLIN AFB - 96TH MED GRP	1.00	South
FT BENNING - MARTIN ACH	0.75	South
FT GORDON - EISENHOWER AMC	0.68	South
FT HOOD - DARNALL ACH	0.95	South
FT JACKSON - MONCRIEF ACH	1.00	South
FT POLK - BAYNE-JONES ACH	1.00	South
FT SILL - REYNOLDS ACH	0.68	South
FT STEWART - WINN ACH	0.66	South
KEESLER AFB - 81ST MED GRP	1.00	South
NH BEAUFORT	1.00	South
NH JACKSONVILLE	0.36	South
NH PENSACOLA	0.18	South
WILFORD HALL - 59TH MED WING, LACKLAND	1.00	South
MEAN SCORE: .80 ***STD DEVIATION: .27***		

Table 16. Hospital Efficiency in TRICARE Southern Region

In the northern region, which is managed by Health Net Federal Services, the mean efficiency score is .74 with a standard deviation of .25, as shown in Table 17.

HOSPITAL	EFFICIENCY	REGION
ANDREWS AFB - 89TH MED GRP	0.21	North
FT BELVOIR - DEWITT ACH	0.68	North
FT BRAGG - WOMACK AMC	1.00	North
FT CAMPBELL - BLANCHFIELD ACH	0.66	North
FT EUSTIS - MCDONALD ACH	1.00	North
FT KNOX - IRELAND ACH	0.55	North
LANGLEY AFB - 1ST MED GRP	0.60	North
NH CAMP LEJEUNE	0.53	North
NH CHERRY POINT	1.00	North
NH GREAT LAKES	1.00	North
NMC PORTSMOUTH	1.00	North
NNMC BETHESDA	0.84	North
SCOTT AFB - 375TH MED GRP	0.79	North
WALTER REED AMC-WASHINGTON DC	1.00	North
WEST POINT - KELLER ACH	0.43	North
WRIGHT PATTERSON - 74TH MED GRP	0.56	North
MEAN SCORE: .74 ***STD DEVIATION: .25***		

Table 17. Hospital Efficiency in TRICARE Northern Region

By comparing all three regions we can see that the southern region has the highest mean score but the others are not far behind. Note that the standard deviations are all around .25 so it leads us to conclude that the variability of the scores is about the same in each region.

The results of this analysis comparing regions and branches of service are not conclusive enough to make generalizations about the performance of one regional contractor versus another or one branch of service versus another. It gives us however some insight in to how different factors can influence the efficiency score of a hospital.

C. SIZE MATTERS

Based on the information contained in the input and output variables it is unknown why some hospitals are more efficient than others. It is speculated that perhaps the larger facilities do better because they are managed by senior health professionals with more experience whereas at the smaller hospitals, the clinic is run by junior and

perhaps inexperienced staff. This idea is supported by a comparison of 15 of the largest hospitals to 15 of the smallest hospitals, as measured by RWP workload.

HOSPITAL	RWP WORKLOAD	DEA VRS EFFICIENCY
BROOKE AMC-FT. SAM HOUSTON	722.96	1.00
WALTER REED AMC-WASHINGTON DC	745.20	1.00
FT BELVOIR - DEWITT ACH	752.37	0.68
FT CARSON - EVANS ACH	881.18	0.89
NH CAMP LEJEUNE	883.62	0.53
NH CAMP PENDLETON	899.53	0.62
FT CAMPBELL - BLANCHFIELD ACH	1200.05	0.66
WILFORD HALL - 59TH MED WING, LACKLAND	1230.14	1.00
NNMC BETHESDA	1333.05	0.84
MADIGAN AMC-FT. LEWIS	1472.56	1.00
FT HOOD - DARNALL ACH	1590.92	0.95
FT BRAGG - WOMACK AMC	1657.32	1.00
TRIPLER AMC-FT SHAFTER	1830.41	0.96
NMC SAN DIEGO	2697.56	1.00
NMC PORTSMOUTH	3326.45	1.00
MEAN SCORE: .875		
STD DEVIATION: .17		

Table 18. Average Efficiency Score of the 15 Largest Hospitals

Table 18 shows that the mean efficiency of the largest hospitals is .875 while the smallest hospitals have a mean efficiency score of .728 as shown in Table 19.

HOSPITAL	RWP WORKLOAD	DEA VRS EFFICIENCY
FT JACKSON - MONCRIEF ACH	38.42	1.00
NH GREAT LAKES	38.64	1.00
SCOTT AFB - 375TH MED GRP	65.85	0.79
WEST POINT - KELLER ACH	117.99	0.43
NH JACKSONVILLE	148.08	0.36
FT GORDON - EISENHOWER AMC	157.70	0.68
FT IRWIN - WEED ACH	161.59	0.55
FT POLK - BAYNE-JONES ACH	165.27	1.00
MT HOME AFB - 366TH MED GRP	171.65	1.00
EGLIN AFB - 96TH MED GRP	181.07	1.00
FT EUSTIS - MCDONALD ACH	185.40	1.00
OFFUTT AFB - 55TH MED GRP	189.94	0.34
NH TWENTYNINE PALMS	192.37	0.27
NH OAK HARBOR	196.47	0.49
NH BEAUFORT	230.85	1.00
MEAN SCORE: .728		
STD DEVIATION: .29		

Table 19. Average Efficiency Score of the 15 Smallest hospitals

Size may play a role in determining the efficiency of a hospital but there are also other theories that need to be investigated. For example, it is also possible that some small hospitals like Naval Hospital Lemoore are contracting out their staffing to civilian companies. You may recall that it was selected as the "best-of-the-best" in obstetric care and scored 1.00 efficiency in our study. In these situations the contractor most likely operates under a profit motive and therefore it is not about management experience but perhaps about the motivations of the management. These are merely theories but are based on insight into the operation of the clinics.

D. IMPROVING CLINICAL EFFICIENCY

One of the most valuable aspects of Data Envelopment Analysis is its ability to identify inefficient hospitals and provide them with a prescription for recovery. This section will select the bottom 5% of hospitals and demonstrate how they can use DEA to improve efficiency. All data relating to this section is shown in Appendix D.

1. Naval Hospital Pensacola

Naval Hospital (NH) Pensacola received an efficiency score 18% which is the lowest score of all the hospitals in this analysis. Before any drastic measures are taken the first step is to determine the root cause of the inefficiency. The low scores could be caused by a number of issues like natural disasters, facility problems, deployments of key personnel, or data quality problems. If the inefficiency can not be attributed to a correctable or temporary event then the next step is to change the inputs of the clinic so that it can reach the efficient frontier. A prudent decision maker will undoubtedly find the reason for the inefficiency so that the drastic changes in the next step are not necessary.

By looking at Appendix D, Efficiency Report, we can see that NH Pensacola should use Fort Eustis-Mc Donald Army Community Hospital as an efficiency benchmark. Based on this reference point and absent of any major factors or events, the first step would be for NH Pensacola obstetric clinic to cut 82% of its staff and funding across the board. In addition, there are slack personnel in the professional, para-professional, and administrative categories. The target staffing and funding levels for NH Pensacola are significantly below current levels. For example, para-professionals FTEs are cut from 11.44 to 1.65 and the budget expenses are cut from $1,155,387 to $208,788.

As indicated earlier, the severity of these cuts suggest that they be done judiciously. The key point in all of this is that we now have an efficiency benchmark. The clinic needs to investigate and justify why it is not meeting the standards. If they can not then senior decision makers know where to make the cuts.

2. Andrews AFB – 89th Medical Group

The 89th Medical Group received an efficiency score of 21% which is the lowest score for any Air Force facility. Its benchmark is Brooke Army Medical Center (AMC) at Fort Sam Houston. Simply looking at the raw data tells us that there are problems here. The 89th Medical Group uses more than double the staff of Brooke AMC. Cost are also more than double since Brooke AMC uses $637,043 to accomplish 723 RWP while the 89th Medical uses $1,763,753 to produce 359 RWP. Obviously there are problems that need to be identified and addressed. The DEA Target Report shows that in order to become efficient, given the same level of output, the 89th Medical would have to reduce staffing and cut the budget from $1,763,753 to $283,068. Most of these cuts are personnel costs which could be shifted to another clinic.

3. Naval Hospital Twentynine Palms

The naval hospital with the second lowest efficiency score is NH Twentynine Palms with a score of 27%. Its benchmark is Moncrief Army Community Hospital in Fort Jackson. The benchmark is determined by the weights applied to each input and output therefore the values of the variables may be different but the proportion is the same. For example, Moncrief produces 38.4 RWP and its largest input variables are Registered Nurses (RN) and para-professionals with .35 and .32 respectively. Twentynine Palms produces significantly more with 192 RWP and has the largest values for the same two inputs which are 10.94 for RN and 12.97 for para-professionals. The DEAFrontier Target report shows that among the other cuts needed the RNs can be reduced to 2.18 and para-professionals need to be cut to 1.84. This relationship between Twentynine Palms and Moncrief demonstrates the utility of the benchmark and shows how it is used in the analysis.

4. Naval Hospital Bremerton

The third naval hospital in the lowest 5% is Naval Hospital Bremerton which scores an efficiency rating of 30%. In this case, the benchmark is another naval facility, NH Beaufort. Examining the input data reveals that NH Bremerton spends $1,308,623 to produce 321 RWP while NH Beaufort spends only $157,995 to produce 231 RWP. Most of these costs can be explained by the exorbitant staffing levels. For example, NH Beaufort utilizes .32 RN FTE while NH Bremerton uses 7.51 RN FTE. The same goes for para-professionals; NH Beaufort utilizes .31 FTE while NH Bremerton uses 7.45 FTE. The Target report in Appendix D suggests that NH Bremerton should make cuts across the board and specifically RN FTE should be cut to 1.62 FTE and para-professionals should be cut to 1.83.

5. Offutt AFB – 55th Medical Group

The 55th Medical Group receives an efficiency score of 34%. Its benchmark is Fort Eustis-Mc Donald Army Community Hospital which was the same benchmark used by NH Pensacola. A clinical manager who wanted to become efficient would cut all input variables by 66%. In addition the trouble areas are highlighted in the slack report which suggests that RN FTE should be cut an additional .13 FTEs. Professional FTE should be cut by an additional .05 FTE. The biggest cut would be para-professionals which would get an additional cut of .26 FTE. The results of these cuts are shown in the Target report which shows that RN FTE drops from 4.32 to 1.3 FTE. Professional FTE drops from .14 to .00 FTE. Administrative FTE drops from .48 to .16 FTE. Clinician FTE drops from 1.52 to .51 FTE. Para-professionals drop from 4.47 to 1.24 FTE. Lastly the budget is cut from $573,433 to $192,667.

E. CONCLUSIONS

Data Envelopment Analysis provides a valuable tool that is currently not utilized by military medicine on a regular basis. The military does not have a profit motive like civilian organization but it does have a responsibility to make the most of the resources given to it by the American people. DEA creates a proxy for a profit motive by developing a benchmark for hospitals to strive for. In this analysis we looked at one clinic across 49 hospitals. If each hospital were able to become 100% efficient, the total

savings could be computed by subtracting the target budgets from the actual budgets. The cost savings in this one analysis amount to $30, 849,102.

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V. SUMMARY AND CONCLUSIONS

A. CONCLUSIONS

Data Envelopment Analysis has been shown to be an effective tool in improving military healthcare as far back as 1985. Since then, numerous studies continue to show the relevance of the methodology in healthcare operations. This study attempts to move beyond the macro approach of looking at the whole medical facility, instead focusing on a specific clinic like obstetrics/gynecology. The macro approach tells the decision makers that the hospital is less efficient than its peers, but it gives little information on what specific action to take. By focusing on a specific clinic, one can begin a grassroots approach to improving performance by addressing specific parts of the hospital. If the parts become efficient, then it stands to reason that the whole will also become more efficient.

The military healthcare system has an advantage over the civilian sector in that it does not need to compete with one another. This provides an opportunity for a collegial environment where hospitals can share information freely. Best business practices should be identified and shared across the services. DEA provides a way to identify facilities that have the highest level of efficiency, and consequently to identify the best business practices for the less efficient facilities. DEA provides actionable information that enables the clinic managers to adjust resources to achieve maximum efficiency. There is also a side benefit to using DEA which taps into the competitive nature of military personnel. By producing efficiency scores, a clinic manager will strive to improve efficiency. This is especially true if over time their score and progress is reflected in their performance evaluation.

DEA continues to be a tool that has enormous potential for improving the efficiency of military medicine. It is unknown why it has not been adopted for regular use but it may be because the underlying linear programming techniques are foreign to many people. This argument may erode as the technique is available in common software packages like Microsoft Excel's Solver function. Whatever the reason for its lack of acceptance in the past, it is now clear that something must be done to curb the

Department of Defense's rising cost of healthcare. DEA provides a tool that can identify, quantify, and provide actionable data to improve efficiency.

B. RECOMMENDATIONS FOR FUTURE STUDIES

Throughout this thesis there are several areas where further investigations are considered outside the scope of this study. For example, one could investigate the root cause of the low efficiency scores, conduct a longitudinal analysis on the efficiency of a clinic, or perhaps one could find a suitable output variable to measure quality. These areas provide an opportunity for further investigation and would increase the knowledge on the subject of DEA and military healthcare efficiency. One of the logical evolutions of this study would be to conduct a real world test to evaluate the response and implications of applying DEA methodology to a group of clinics. This test would be stretched over time to see how the clinics react and how they use the DEA results to improve their efficiency. As part of this study, the facilitator would work with the clinics to develop a consensus on what metrics to use. This step is critical because there needs to be participant buy-in on what data accurately reflects the scope and complexity of the services provided. Based on the success and lessons learned of this pilot study, the technique could be applied to a greater number of facilities.

APPENDIX A

Outpatient Data (SADR) data utilizing DEAFrontier with Constant Returns to Scale (CRS)

INPUTS AND OUTPUTS

Tmt Parent DMIS ID Name(Query 3 with ARSBSP2)	SADR RN FTE	SADR PROF FTE	SADR ADMIN FTE	SADR CLIN FTE	SADR PARA-PROF FTE	FY05 Full Cost, Total SADR		FY05 Simple RVU, Total
ANDREWS AFB - 89TH MED GRP	3.62	2.56	3.95	2.05	6.74	4903330.95		16383.53
BROOKE AMC-FT. SAM HOUSTON	2.75	2.62	5.51	10.40	15.16	9862865.37		35512.11
EGLIN AFB - 96TH MED GRP	4.70	3.65	4.30	4.67	9.81	5565016.16		19200.61
ELMENDORF - 3RD MED GRP	2.37	4.28	2.82	2.92	7.71	4476727.24		12954.82
FT BELVOIR - DEWITT ACH	4.94	8.31	8.02	5.48	11.23	7171948.10		33843.48
FT BENNING - MARTIN ACH	0.82	0.95	3.55	3.88	8.72	2509889.86		12467.88
FT BRAGG - WOMACK AMC	2.72	4.62	8.64	7.94	16.59	9467958.53		50228.68
FT CAMPBELL - BLANCHFIELD ACH	4.46	7.53	6.29	4.80	23.47	10424110.27		41610.59
FT CARSON - EVANS ACH	4.17	3.80	3.64	4.24	15.64	7005642.24		28946.93
FT EUSTIS - MCDONALD ACH	1.89	1.58	2.34	1.73	5.70	3232965.98		16487.04
FT GORDON - EISENHOWER AMC	1.08	2.77	2.10	2.13	8.09	3029548.68		11761.53
FT HOOD - DARNALL ACH	8.26	10.34	8.88	10.91	28.06	13328698.66		63728.08
FT IRWIN - WEED ACH	1.02	0.00	0.66	2.44	2.29	1349152.03		7029.90
FT JACKSON - MONCRIEF ACH	0.00	0.80	0.85	0.95	3.46	811159.18		4112.01
FT KNOX - IRELAND ACH	0.95	3.28	2.43	2.34	5.79	3304807.31		13698.43
FT LEONARD WOOD - L. WOOD ACH	0.65	0.87	1.69	1.98	4.51	2177459.46		9581.15
FT POLK - BAYNE-JONES ACH	0.84	0.33	1.75	2.43	5.25	2157098.47		8746.31
FT RILEY - IRWIN ACH	1.58	3.00	2.35	1.97	5.48	3480066.70		22583.22
FT SILL - REYNOLDS ACH	1.32	0.80	2.87	2.49	5.04	3802520.76		20218.94
FT STEWART - WINN ACH	3.12	2.73	4.44	3.67	7.73	5585442.90		19337.08
FT WAINWRIGHT - BASSETT ACH	0.92	1.89	1.46	2.45	3.02	2693183.92		15530.00
KEESLER AFB - 81ST MED GRP	4.83	1.54	7.73	6.97	12.16	6240863.56		25544.82
LANGLEY AFB - 1ST MED GRP	7.24	5.10	6.33	3.56	11.73	5335821.38		20540.15
MADIGAN AMC-FT. LEWIS	6.48	2.68	13.06	21.47	17.00	14338761.07		71682.71
MT HOME AFB - 366TH MED GRP	0.97	0.63	0.86	2.07	4.25	1950107.59		8901.34
NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	7.39	3.48	1.50	2.55	15.92	5973558.31		14943.99
NH BEAUFORT	1.28	1.51	1.71	2.55	4.82	2556216.78		13020.55
NH BREMERTON	1.94	2.65	5.40	1.87	5.36	3626302.62		17512.60
NH CAMP LEJEUNE	2.53	3.59	2.55	3.34	25.46	6285380.21		33028.76
NH CAMP PENDLETON	5.03	2.91	4.67	4.96	15.39	7752523.90		29906.30
NH CHERRY POINT	2.53	1.49	0.84	2.16	6.64	2329948.07		13664.61
NH GREAT LAKES	1.58	4.02	0.31	0.71	10.93	2814236.93		22266.28
NH JACKSONVILLE	5.17	1.98	3.53	3.05	9.19	5566396.54		33446.86
NH LEMOORE	1.88	0.87	0.91	2.15	5.36	2390416.33		12939.97
NH OAK HARBOR	2.99	0.00	1.50	2.58	4.00	2193084.08		7661.61
NH PENSACOLA	1.15	1.95	2.69	2.79	6.10	3251008.89		11752.55
NH TWENTYNINE PALMS	1.95	1.19	0.81	2.28	4.33	2246623.30		11400.55
NMC PORTSMOUTH	14.89	11.05	13.99	35.24	40.01	33078786.66		129353.92
NMC SAN DIEGO	9.66	13.39	17.59	25.39	34.21	21561855.77		98865.47
NNMC BETHESDA	11.46	6.84	13.42	17.81	24.66	17255107.53		88083.30
OFFUTT AFB - 55TH MED GRP	7.04	1.89	3.60	2.66	3.70	2431852.10		10172.46
SCOTT AFB - 375TH MED GRP	3.70	1.60	1.52	2.08	5.93	3354804.63		12723.41
TRAVIS AFB - 60TH MED GRP	3.90	2.00	6.14	6.02	10.50	4865620.11		17222.85
TRIPLER AMC-FT SHAFTER	7.95	3.58	16.09	14.92	23.64	13316555.09		74441.21
WALTER REED AMC-WASHINGTON DC	9.10	4.51	20.63	12.94	16.44	14850919.02		50976.03
WEST POINT - KELLER ACH	0.82	0.00	0.35	1.50	1.77	1024520.27		3420.26
WILFORD HALL - 59TH MED WING, LACKLAND	7.80	5.51	12.77	17.49	12.72	11524188.32		44840.39
WILLIAM BEAUMONT AMC-FT. BLISS	2.48	2.84	0.04	4.87	6.49	4974071.22		14407.77
WRIGHT PATTERSON - 74TH MED GRP	7.89	2.04	6.38	7.19	13.80	6417507.50		26383.74

EFFICIENCY REPORT

DMU No.	DMU Name	Input-Oriented CRS Efficiency	Σλ	RTS	Benchmarks	
1	ANDREWS AFB - 89TH MED GRP	0.67330	0.625	Increasing	0.354	FT RILEY - IRWIN ACH
2	BROOKE AMC-FT. SAM HOUSTON	0.82851	1.873	Decreasing	1.323	FT SILL - REYNOLDS ACH
3	EGLIN AFB - 96TH MED GRP	0.54324	0.725	Increasing	0.392	FT RILEY - IRWIN ACH
4	ELMENDORF - 3RD MED GRP	0.44086	0.583	Increasing	0.505	FT RILEY - IRWIN ACH
5	FT BELVOIR - DEWITT ACH	0.72862	1.509	Decreasing	1.475	FT RILEY - IRWIN ACH
6	FT BENNING - MARTIN ACH	0.90623	0.837	Increasing	0.285	FT JACKSON - MONCRIEF ACH
7	FT BRAGG - WOMACK AMC	0.98322	4.257	Decreasing	1.922	FT JACKSON - MONCRIEF ACH
8	FT CAMPBELL - BLANCHFIELD ACH	0.64953	1.935	Decreasing	0.178	FT RILEY - IRWIN ACH
9	FT CARSON - EVANS ACH	0.67902	1.436	Decreasing	0.104	FT IRWIN - WEED ACH
10	FT EUSTIS - MCDONALD ACH	0.86828	0.673	Increasing	0.092	FT RILEY - IRWIN ACH
11	FT GORDON - EISENHOWER AMC	0.61688	0.940	Increasing	0.417	FT JACKSON - MONCRIEF ACH
12	FT HOOD - DARNALL ACH	0.72859	2.591	Decreasing	1.030	FT RILEY - IRWIN ACH
13	FT IRWIN - WEED ACH	1.00000	1.000	Constant	1.000	FT IRWIN - WEED ACH
14	FT JACKSON - MONCRIEF ACH	1.00000	1.000	Constant	1.000	FT JACKSON - MONCRIEF ACH
15	FT KNOX - IRELAND ACH	0.78743	1.171	Decreasing	0.586	FT JACKSON - MONCRIEF ACH
16	FT LEONARD WOOD - L. WOOD ACH	0.81780	0.768	Increasing	0.364	FT JACKSON - MONCRIEF ACH
17	FT POLK - BAYNE-JONES ACH	0.84450	0.596	Increasing	0.251	FT IRWIN - WEED ACH
18	FT RILEY - IRWIN ACH	1.00000	1.000	Constant	1.000	FT RILEY - IRWIN ACH
19	FT SILL - REYNOLDS ACH	1.00000	1.000	Constant	1.000	FT SILL - REYNOLDS ACH
20	FT STEWART - WINN ACH	0.60042	0.954	Increasing	0.319	FT RILEY - IRWIN ACH
21	FT WAINWRIGHT - BASSETT ACH	1.00000	1.000	Constant	1.000	FT WAINWRIGHT - BASSETT ACH
22	KEESLER AFB - 81ST MED GRP	0.71821	2.043	Decreasing	1.524	FT IRWIN - WEED ACH
23	LANGLEY AFB - 1ST MED GRP	0.56485	0.884	Increasing	0.537	FT RILEY - IRWIN ACH
24	MADIGAN AMC-FT. LEWIS	1.00000	1.000	Constant	1.000	MADIGAN AMC-FT. LEWIS
25	MT HOME AFB - 366TH MED GRP	0.90008	0.751	Increasing	0.494	FT IRWIN - WEED ACH
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	0.51070	0.776	Increasing	0.316	NH GREAT LAKES
27	NH BEAUFORT	0.82902	0.575	Increasing	0.132	FT RILEY - IRWIN ACH
28	NH BREMERTON	0.81600	0.741	Increasing	0.660	FT RILEY - IRWIN ACH
29	NH CAMP LEJEUNE	0.97457	1.808	Decreasing	0.381	FT IRWIN - WEED ACH
30	NH CAMP PENDLETON	0.66797	1.399	Decreasing	0.051	FT IRWIN - WEED ACH
31	NH CHERRY POINT	0.91673	1.011	Decreasing	0.582	FT IRWIN - WEED ACH
32	NH GREAT LAKES	1.00000	1.000	Constant	1.000	NH GREAT LAKES
33	NH JACKSONVILLE	1.00000	1.000	Constant	1.000	NH JACKSONVILLE
34	NH LEMOORE	1.00000	1.000	Constant	1.000	NH LEMOORE
35	NH OAK HARBOR	1.00000	1.000	Constant	1.000	NH OAK HARBOR
36	NH PENSACOLA	0.61972	0.764	Increasing	0.180	FT JACKSON - MONCRIEF ACH
37	NH TWENTYNINE PALMS	0.92342	0.992	Increasing	0.616	FT IRWIN - WEED ACH
38	NMC PORTSMOUTH	0.84383	12.289	Decreasing	7.577	FT IRWIN - WEED ACH
39	NMC SAN DIEGO	0.75193	4.462	Decreasing	2.506	FT RILEY - IRWIN ACH
40	NNMC BETHESDA	0.88784	3.832	Decreasing	1.169	FT SILL - REYNOLDS ACH
41	OFFUTT AFB - 55TH MED GRP	0.66063	0.459	Increasing	0.342	FT RILEY - IRWIN ACH
42	SCOTT AFB - 375TH MED GRP	0.68835	0.624	Increasing	0.196	FT IRWIN - WEED ACH
43	TRAVIS AFB - 60TH MED GRP	0.58573	1.191	Decreasing	0.781	FT IRWIN - WEED ACH
44	TRIPLER AMC-FT SHAFTER	0.99472	6.012	Decreasing	3.915	FT IRWIN - WEED ACH
45	WALTER REED AMC-WASHINGTON DC	0.71294	2.256	Decreasing	1.101	FT SILL - REYNOLDS ACH
46	WEST POINT - KELLER ACH	0.92438	0.485	Increasing	0.484	FT IRWIN - WEED ACH
47	WILFORD HALL - 59TH MED WING, LACKLAND	0.74040	2.071	Decreasing	1.845	FT WAINWRIGHT - BASSETT ACH
48	WILLIAM BEAUMONT AMC-FT. BLISS	1.00000	1.000	Constant	1.000	WILLIAM BEAUMONT AMC-FT. BLISS
49	WRIGHT PATTERSON - 74TH MED GRP	0.69398	1.065	Decreasing	0.350	FT IRWIN - WEED ACH

SLACK REPORT

Input-Oriented
CRS Model Slacks

DMU No.	DMU Name	Input Slacks: SADR AVG YEARLY RN FTE	SADR AVG YEARLY PROF FTE	SADR AVG YEARLY ADMIN FTE	SADR AVG YEARLY CLIN FTE	SADR AVG YEARLY PARA-PROF FTE	FY05 Full Cost, Total SADR	Output Slacks: FY05 Simple RVU, Total
1	ANDREWS AFB - 89TH MED GRP	0.69731	0.00000	1.06707	0.00000	0.00000	728010.60060	0.00000
2	BROOKE AMC-FT. SAM HOUSTON	0.00000	0.00000	0.00000	4.02850	3.96870	1655691.30881	0.00000
3	EGLIN AFB - 96TH MED GRP	0.46466	0.00000	0.46157	0.91148	0.00000	0.00000	0.00000
4	ELMENDORF - 3RD MED GRP	0.14036	0.11541	0.00000	0.18639	0.00000	0.00000	0.00000
5	FT BELVOIR - DEWITT ACH	1.23174	1.56573	2.32484	0.99352	0.00000	0.00000	0.00000
6	FT BENNING - MARTIN ACH	0.00000	0.00000	1.53500	1.97919	3.78654	0.00000	0.00000
7	FT BRAGG - WOMACK AMC	0.00000	0.00000	1.62735	0.21867	0.00000	27279.07048	0.00000
8	FT CAMPBELL - BLANCHFIELD ACH	0.00000	0.00000	0.93353	0.00000	0.00000	340892.82049	0.00000
9	FT CARSON - EVANS ACH	0.00000	0.00000	0.00000	0.00000	0.48401	0.00000	0.00000
10	FT EUSTIS - MCDONALD ACH	0.00000	0.00000	0.35730	0.00000	0.00000	86033.40465	0.00000
11	FT GORDON - EISENHOWER AMC	0.00000	0.00000	0.31385	0.02610	0.00000	0.00000	0.00000
12	FT HOOD - DARNALL ACH	0.00000	0.00000	1.21936	3.12457	0.00000	0.00000	0.00000
13	FT IRWIN - WEED ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
14	FT JACKSON - MONCRIEF ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
15	FT KNOX - IRELAND ACH	0.00000	0.66525	0.27939	0.00000	0.00000	305906.90526	0.00000
16	FT LEONARD WOOD - L. WOOD ACH	0.00000	0.00000	0.00000	0.30871	0.32132	0.00000	0.00000
17	FT POLK - BAYNE-JONES ACH	0.00000	0.00000	0.31899	0.58179	2.12004	169992.08656	0.00000
18	FT RILEY - IRWIN ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
19	FT SILL - REYNOLDS ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
20	FT STEWART - WINN ACH	0.57939	0.00000	0.31540	0.00000	0.00000	0.00000	0.00000
21	FT WAINWRIGHT - BASSETT ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
22	KEESLER AFB - 81ST MED GRP	0.00000	0.00000	3.10208	0.00000	0.73747	0.00000	0.00000
23	LANGLEY AFB - 1ST MED GRP	2.47458	0.00000	2.00808	0.56096	0.00000	0.00000	0.00000
24	MADIGAN AMC-FT. LEWIS	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
25	MT HOME AFB - 366TH MED GRP	0.00000	0.00000	0.00000	0.22051	0.73633	222347.55551	0.00000
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	2.09749	0.00000	0.00000	0.00000	1.84432	758776.43806	0.00000
27	NH BEAUFORT	0.00000	0.00000	0.13325	0.95608	0.00000	0.00000	0.00000
28	NH BREMERTON	0.15509	0.00000	2.59942	0.00000	0.00000	236836.58000	0.00000
29	NH CAMP LEJEUNE	0.00000	0.00000	0.00000	0.06932	12.45264	905827.12193	0.00000
30	NH CAMP PENDLETON	0.00000	0.00000	0.00000	0.00000	1.05413	0.00000	0.00000
31	NH CHERRY POINT	0.80290	0.00000	0.00000	0.00000	0.58682	0.00000	0.00000
32	NH GREAT LAKES	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
33	NH JACKSONVILLE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
34	NH LEMOORE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
35	NH OAK HARBOR	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
36	NH PENSACOLA	0.00000	0.00000	0.43131	0.31362	0.00000	0.00000	0.00000
37	NH TWENTYNINE PALMS	0.70491	0.00000	0.00000	0.00000	0.00000	208440.30266	0.00000
38	NMC PORTSMOUTH	0.01397	0.00000	0.00000	0.00000	0.00000	4727942.77818	0.00000
39	NMC SAN DIEGO	0.00000	0.00000	2.22364	9.61435	0.00000	0.00000	0.00000
40	NNMC BETHESDA	0.70303	0.00000	1.99716	5.60038	0.00000	0.00000	0.00000
41	OFFUTT AFB - 55TH MED GRP	3.85243	0.00000	1.33194	0.77134	0.00000	0.00000	0.00000
42	SCOTT AFB - 375TH MED GRP	0.96182	0.00000	0.00000	0.00000	0.00000	262916.61945	0.00000
43	TRAVIS AFB - 60TH MED GRP	0.00000	0.00000	2.19738	0.78391	0.29351	0.00000	0.00000
44	TRIPLER AMC-FT SHAFTER	0.00000	0.00000	8.46000	0.78988	0.00000	0.00000	0.00000
45	WALTER REED AMC-WASHINGTON DC	2.90379	0.00000	7.63400	0.00000	0.00000	1055553.01915	0.00000
46	WEST POINT - KELLER ACH	0.26520	0.00000	0.00000	0.20116	0.51803	288247.68572	0.00000
47	WILFORD HALL - 59TH MED WING, LACKLAND	2.61541	0.00000	3.81812	3.57224	0.00000	325494.51049	0.00000
48	WILLIAM BEAUMONT AMC-FT. BLISS	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
49	WRIGHT PATTERSON - 74TH MED GRP	1.41885	0.00000	1.66522	1.95403	2.20364	0.00000	0.00000

TARGET REPORT

Input-Oriented
CRS Model Target

DMU No.	DMU Name	Efficient Input Target SADR RN FTE	SADR PROF FTE	SADR ADMIN FTE	SADR CLIN FTE	SADR PARA-PROF FTE	FY05 Full Cost, Total SADR	Efficient Output Target FY05 Simple RVU, Total
1	ANDREWS AFB - 89TH MED GRP	1.74	1.72	1.59	1.38	4.54	2573423.39	16383.53
2	BROOKE AMC-FT. SAM HOUSTON	2.28	2.17	4.57	4.58	8.59	6515791.67	35512.11
3	EGLIN AFB - 96TH MED GRP	2.09	1.98	1.87	1.62	5.33	3023123.03	19200.61
4	ELMENDORF - 3RD MED GRP	0.90	1.77	1.24	1.10	3.40	1973599.95	12954.82
5	FT BELVOIR - DEWITT ACH	2.37	4.49	3.52	3.00	8.18	5225607.75	33843.48
6	FT BENNING - MARTIN ACH	0.75	0.86	1.68	1.54	4.12	2274538.09	12467.88
7	FT BRAGG - WOMACK AMC	2.67	4.54	6.87	7.59	16.31	9281785.27	50228.68
8	FT CAMPBELL - BLANCHFIELD ACH	2.90	4.89	3.15	3.12	15.25	6429905.89	41610.59
9	FT CARSON - EVANS ACH	2.83	2.58	2.47	2.88	10.14	4756947.39	28946.93
10	FT EUSTIS - MCDONALD ACH	1.64	1.37	1.67	1.50	4.95	2721097.69	16487.04
11	FT GORDON - EISENHOWER AMC	0.66	1.71	0.98	1.28	4.99	1868876.50	11761.53
12	FT HOOD - DARNALL ACH	6.02	7.53	5.25	4.83	20.44	9711216.76	63728.08
13	FT IRWIN - WEED ACH	1.02	0.00	0.66	2.44	2.29	1349152.03	7029.90
14	FT JACKSON - MONCRIEF ACH	0.00	0.80	0.85	0.95	3.46	811159.18	4112.01
15	FT KNOX - IRELAND ACH	0.75	1.92	1.63	1.84	4.56	2296413.59	13698.43
16	FT LEONARD WOOD - L. WOOD ACH	0.53	0.71	1.38	1.31	3.37	1780736.83	9581.15
17	FT POLK - BAYNE-JONES ACH	0.71	0.28	1.16	1.47	2.32	1651682.40	8746.31
18	FT RILEY - IRWIN ACH	1.58	3.00	2.35	1.97	5.48	3480066.70	22583.22
19	FT SILL - REYNOLDS ACH	1.32	0.80	2.87	2.49	5.04	3802520.76	20218.94
20	FT STEWART - WINN ACH	1.29	1.64	2.35	2.21	4.64	3353597.00	19337.08
21	FT WAINWRIGHT - BASSETT ACH	0.92	1.89	1.46	2.45	3.02	2693183.92	15530.00
22	KEESLER AFB - 81ST MED GRP	3.47	1.10	2.45	5.01	7.99	4482275.52	25544.82
23	LANGLEY AFB - 1ST MED GRP	1.62	2.88	1.57	1.45	6.63	3013926.03	20540.15
24	MADIGAN AMC-FT. LEWIS	6.48	2.68	13.06	21.47	17.00	14338761.07	71682.71
25	MT HOME AFB - 366TH MED GRP	0.87	0.57	0.78	1.64	3.09	1532895.79	8901.34
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	1.68	1.78	0.77	1.30	6.28	2291909.45	14943.99
27	NH BEAUFORT	1.06	1.25	1.28	1.16	4.00	2119166.13	13020.55
28	NH BREMERTON	1.43	2.16	1.81	1.53	4.38	2722236.07	17512.60
29	NH CAMP LEJEUNE	2.46	3.49	2.49	3.19	12.36	5219710.91	33028.76
30	NH CAMP PENDLETON	3.36	1.94	3.12	3.31	9.23	5178475.89	29906.30
31	NH CHERRY POINT	1.52	1.36	0.77	1.98	5.50	2135935.14	13664.61
32	NH GREAT LAKES	1.58	4.02	0.31	0.71	10.93	2814236.93	22266.28
33	NH JACKSONVILLE	5.17	1.98	3.53	3.05	9.19	5566396.54	33446.86
34	NH LEMOORE	1.88	0.87	0.91	2.15	5.36	2390416.33	12939.97
35	NH OAK HARBOR	2.99	0.00	1.50	2.58	4.00	2193084.08	7661.61
36	NH PENSACOLA	0.71	1.21	1.24	1.42	3.78	2014701.99	11752.55
37	NH TWENTYNINE PALMS	1.09	1.10	0.74	2.11	4.00	1866127.16	11400.55
38	NMC PORTSMOUTH	12.55	9.32	11.80	29.73	33.76	23184895.77	129353.92
39	NMC SAN DIEGO	7.26	10.07	11.00	9.47	25.72	16212948.16	98865.47
40	NNMC BETHESDA	9.47	6.08	9.91	10.21	21.89	15319813.69	88083.30
41	OFFUTT AFB - 55TH MED GRP	0.80	1.25	1.05	0.98	2.44	1606548.18	10172.46
42	SCOTT AFB - 375TH MED GRP	1.59	1.10	1.05	1.43	4.08	2046357.48	12723.41
43	TRAVIS AFB - 60TH MED GRP	2.28	1.17	1.40	2.74	5.86	2849961.04	17222.85
44	TRIPLER AMC-FT SHAFTER	7.91	3.56	7.54	14.05	23.52	13246305.18	74441.21
45	WALTER REED AMC-WASHINGTON DC	3.59	3.21	7.07	9.22	11.72	9532218.13	50976.03
46	WEST POINT - KELLER ACH	0.50	0.00	0.32	1.19	1.12	658799.41	3420.26
47	WILFORD HALL - 59TH MED WING, LACKLAND	3.16	4.08	5.63	9.38	9.42	8207037.45	44840.39
48	WILLIAM BEAUMONT AMC-FT. BLISS	2.48	2.84	0.04	4.87	6.49	4974071.22	14407.77
49	WRIGHT PATTERSON - 74TH MED GRP	4.05	1.42	2.76	3.03	7.38	4453591.42	26383.74

APPENDIX B

Outpatient Data (SADR) data utilizing DEAFrontier with Variable Returns to Scale (VRS)

INPUTS AND OUTPUTS

Tmt Parent DMIS ID Name(Query 3 with ARSBSP2)	SADR RN FTE	SADR PROF FTE	SADR ADMIN FTE	SADR CLIN FTE	SADR PARA-PROF FTE	FY05 Full Cost, Total SADR		FY05 Simple RVU, Total
ANDREWS AFB - 89TH MED GRP	3.62	2.56	3.95	2.05	6.74	4903330.95		16383.53
BROOKE AMC-FT. SAM HOUSTON	2.75	2.62	5.51	10.40	15.16	9862865.37		35512.11
EGLIN AFB - 96TH MED GRP	4.70	3.65	4.30	4.67	9.81	5565016.16		19200.61
ELMENDORF - 3RD MED GRP	2.37	4.28	2.82	2.92	7.71	4476727.24		12954.82
FT BELVOIR - DEWITT ACH	4.94	8.31	8.02	5.48	11.23	7171948.10		33843.48
FT BENNING - MARTIN ACH	0.82	0.95	3.55	3.88	8.72	2509889.86		12467.88
FT BRAGG - WOMACK AMC	2.72	4.62	8.64	7.94	16.59	9467958.53		50228.68
FT CAMPBELL - BLANCHFIELD ACH	4.46	7.53	6.29	4.80	23.47	10424110.27		41610.59
FT CARSON - EVANS ACH	4.17	3.80	3.64	4.24	15.64	7005642.24		28946.93
FT EUSTIS - MCDONALD ACH	1.89	1.58	2.34	1.73	5.70	3232965.98		16487.04
FT GORDON - EISENHOWER AMC	1.08	2.77	2.10	2.13	8.09	3029548.68		11761.53
FT HOOD - DARNALL ACH	8.26	10.34	8.88	10.91	28.06	13328698.66		63728.08
FT IRWIN - WEED ACH	1.02	0.00	0.66	2.44	2.29	1349152.03		7029.90
FT JACKSON - MONCRIEF ACH	0.00	0.80	0.85	0.95	3.46	811159.18		4112.01
FT KNOX - IRELAND ACH	0.95	3.28	2.43	2.34	5.79	3304807.31		13698.43
FT LEONARD WOOD - L. WOOD ACH	0.65	0.87	1.69	1.98	4.51	2177459.46		9581.15
FT POLK - BAYNE-JONES ACH	0.84	0.33	1.75	2.43	5.25	2157098.47		8746.31
FT RILEY - IRWIN ACH	1.58	3.00	2.35	1.97	5.48	3480066.70		22583.22
FT SILL - REYNOLDS ACH	1.32	0.80	2.87	2.49	5.04	3802520.76		20218.94
FT STEWART - WINN ACH	3.12	2.73	4.44	3.67	7.73	5585442.90		19337.08
FT WAINWRIGHT - BASSETT ACH	0.92	1.89	1.46	2.45	3.02	2693183.92		15530.00
KEESLER AFB - 81ST MED GRP	4.83	1.54	7.73	6.97	12.16	6240863.56		25544.82
LANGLEY AFB - 1ST MED GRP	7.24	5.10	6.33	3.56	11.73	5335821.38		20540.15
MADIGAN AMC-FT. LEWIS	6.48	2.68	13.06	21.47	17.00	14338761.07		71682.71
MT HOME AFB - 366TH MED GRP	0.97	0.63	0.86	2.07	4.25	1950107.59		8901.34
NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	7.39	3.48	1.50	2.55	15.92	5973558.31		14943.99
NH BEAUFORT	1.28	1.51	1.71	2.55	4.82	2556216.78		13020.55
NH BREMERTON	1.94	2.65	5.40	1.87	5.36	3626302.62		17512.60
NH CAMP LEJEUNE	2.53	3.59	2.55	3.34	25.46	6285380.21		33028.76
NH CAMP PENDLETON	5.03	2.91	4.67	4.96	15.39	7752523.90		29906.30
NH CHERRY POINT	2.53	1.49	0.84	2.16	6.64	2329948.07		13664.61
NH GREAT LAKES	1.58	4.02	0.31	0.71	10.93	2814236.93		22266.28
NH JACKSONVILLE	5.17	1.98	3.53	3.05	9.19	5566396.54		33446.86
NH LEMOORE	1.88	0.87	0.91	2.15	5.36	2390416.33		12939.97
NH OAK HARBOR	2.99	0.00	1.50	2.58	4.00	2193084.08		7661.61
NH PENSACOLA	1.15	1.95	2.69	2.79	6.10	3251008.89		11752.55
NH TWENTYNINE PALMS	1.95	1.19	0.81	2.28	4.33	2246623.30		11400.55
NMC PORTSMOUTH	14.89	11.05	13.99	35.24	40.01	33078786.66		129353.92
NMC SAN DIEGO	9.66	13.39	17.59	25.39	34.21	21561855.77		98865.47
NNMC BETHESDA	11.46	6.84	13.42	17.81	24.66	17255107.53		88083.30
OFFUTT AFB - 55TH MED GRP	7.04	1.89	3.60	2.66	3.70	2431852.10		10172.46
SCOTT AFB - 375TH MED GRP	3.70	1.60	1.52	2.08	5.93	3354804.63		12723.41
TRAVIS AFB - 60TH MED GRP	3.90	2.00	6.14	6.02	10.50	4865620.11		17222.85
TRIPLER AMC-FT SHAFTER	7.95	3.58	16.09	14.92	23.64	13316555.09		74441.21
WALTER REED AMC-WASHINGTON DC	9.10	4.51	20.63	12.94	16.44	14850919.02		50976.03
WEST POINT - KELLER ACH	0.82	0.00	0.35	1.50	1.77	1024520.27		3420.26
WILFORD HALL - 59TH MED WING, LACKLAND	7.80	5.51	12.77	17.49	12.72	11524188.32		44840.39
WILLIAM BEAUMONT AMC-FT. BLISS	2.48	2.84	0.04	4.87	6.49	4974071.22		14407.77
WRIGHT PATTERSON - 74TH MED GRP	7.89	2.04	6.38	7.19	13.80	6417507.50		26383.74

EFFICIENCY REPORT

DMU No.	DMU Name	Input-Oriented VRS Efficiency	Benchmarks	
1	ANDREWS AFB - 89TH MED GRP	0.78916	0.311	FT JACKSON - MONCRIEF ACH
2	BROOKE AMC-FT. SAM HOUSTON	0.93001	0.172	FT BRAGG - WOMACK AMC
3	EGLIN AFB - 96TH MED GRP	0.54869	0.311	FT IRWIN - WEED ACH
4	ELMENDORF - 3RD MED GRP	0.53255	0.317	FT JACKSON - MONCRIEF ACH
5	FT BELVOIR - DEWITT ACH	0.80092	0.446	FT RILEY - IRWIN ACH
6	FT BENNING - MARTIN ACH	0.91789	0.085	FT IRWIN - WEED ACH
7	FT BRAGG - WOMACK AMC	1.00000	1.000	FT BRAGG - WOMACK AMC
8	FT CAMPBELL - BLANCHFIELD ACH	1.00000	1.000	FT CAMPBELL - BLANCHFIELD ACH
9	FT CARSON - EVANS ACH	0.71279	0.015	FT BRAGG - WOMACK AMC
10	FT EUSTIS - MCDONALD ACH	0.99548	0.268	FT JACKSON - MONCRIEF ACH
11	FT GORDON - EISENHOWER AMC	0.61922	0.016	FT IRWIN - WEED ACH
12	FT HOOD - DARNALL ACH	1.00000	1.000	FT HOOD - DARNALL ACH
13	FT IRWIN - WEED ACH	1.00000	1.000	FT IRWIN - WEED ACH
14	FT JACKSON - MONCRIEF ACH	1.00000	1.000	FT JACKSON - MONCRIEF ACH
15	FT KNOX - IRELAND ACH	0.79307	0.049	FT BRAGG - WOMACK AMC
16	FT LEONARD WOOD - L. WOOD ACH	0.84966	0.128	FT IRWIN - WEED ACH
17	FT POLK - BAYNE-JONES ACH	0.99797	0.592	FT IRWIN - WEED ACH
18	FT RILEY - IRWIN ACH	1.00000	1.000	FT RILEY - IRWIN ACH
19	FT SILL - REYNOLDS ACH	1.00000	1.000	FT SILL - REYNOLDS ACH
20	FT STEWART - WINN ACH	0.60977	0.351	FT RILEY - IRWIN ACH
21	FT WAINWRIGHT - BASSETT ACH	1.00000	1.000	FT WAINWRIGHT - BASSETT ACH
22	KEESLER AFB - 81ST MED GRP	0.72540	0.585	FT IRWIN - WEED ACH
23	LANGLEY AFB - 1ST MED GRP	0.56707	0.131	FT IRWIN - WEED ACH
24	MADIGAN AMC-FT. LEWIS	1.00000	1.000	MADIGAN AMC-FT. LEWIS
25	MT HOME AFB - 366TH MED GRP	0.94726	0.588	FT IRWIN - WEED ACH
26	NELLIS AFB - 99TH MED GRP, O'CALLAG	0.54065	0.119	FT SILL - REYNOLDS ACH
27	NH BEAUFORT	0.84717	0.425	FT IRWIN - WEED ACH
28	NH BREMERTON	0.91071	0.251	FT JACKSON - MONCRIEF ACH
29	NH CAMP LEJEUNE	1.00000	1.000	NH CAMP LEJEUNE
30	NH CAMP PENDLETON	0.69180	0.338	FT SILL - REYNOLDS ACH
31	NH CHERRY POINT	0.91831	0.554	FT IRWIN - WEED ACH
32	NH GREAT LAKES	1.00000	1.000	NH GREAT LAKES
33	NH JACKSONVILLE	1.00000	1.000	NH JACKSONVILLE
34	NH LEMOORE	1.00000	1.000	NH LEMOORE
35	NH OAK HARBOR	1.00000	1.000	NH OAK HARBOR
36	NH PENSACOLA	0.63472	0.120	FT IRWIN - WEED ACH
37	NH TWENTYNINE PALMS	0.92500	0.604	FT IRWIN - WEED ACH
38	NMC PORTSMOUTH	1.00000	1.000	NMC PORTSMOUTH
39	NMC SAN DIEGO	1.00000	1.000	NMC SAN DIEGO
40	NNMC BETHESDA	1.00000	1.000	NNMC BETHESDA
41	OFFUTT AFB - 55TH MED GRP	0.76449	0.188	FT IRWIN - WEED ACH
42	SCOTT AFB - 375TH MED GRP	0.77808	0.060	FT JACKSON - MONCRIEF ACH
43	TRAVIS AFB - 60TH MED GRP	0.58614	0.533	FT IRWIN - WEED ACH
44	TRIPLER AMC-FT SHAFTER	1.00000	1.000	TRIPLER AMC-FT SHAFTER
45	WALTER REED AMC-WASHINGTON DC	0.80189	0.320	MADIGAN AMC-FT. LEWIS
46	WEST POINT - KELLER ACH	1.00000	1.000	WEST POINT - KELLER ACH
47	WILFORD HALL - 59TH MED WING, LACK	0.81118	0.478	FT WAINWRIGHT - BASSETT ACH
48	WILLIAM BEAUMONT AMC-FT. BLISS	1.00000	1.000	WILLIAM BEAUMONT AMC-FT. BLISS
49	WRIGHT PATTERSON - 74TH MED GRP	0.69562	0.300	FT IRWIN - WEED ACH

SLACK REPORT

Input-Oriented
VRS Model Slacks

DMU No.	DMU Name	Input Slacks SADR AVG YEARLY RN FTE	SADR AVG YEARLY PROF FTE	SADR AVG YEARLY ADMIN FTE	SADR AVG YEARLY CLIN FTE	YEARLY PARA-PROF FTE	FY05 Full Cost, Total SADR	Output Slacks FY05 Simple RVU, Total
1	ANDREWS AFB - 89TH MED GRP	1.81556	0.00000	1.34333	0.00000	0.00000	1227270.57155	0.00000
2	BROOKE AMC-FT. SAM HOUSTON	0.00000	0.00000	0.00000	3.51370	0.16304	2357717.35861	0.00000
3	EGLIN AFB - 96TH MED GRP	0.68121	0.00000	0.51574	0.38625	0.00000	0.00000	0.00000
4	ELMENDORF - 3RD MED GRP	0.33031	0.56403	0.02060	0.00000	0.00000	233511.44871	0.00000
5	FT BELVOIR - DEWITT ACH	0.00000	3.95969	2.14967	0.00000	0.00000	0.00000	0.00000
6	FT BENNING - MARTIN ACH	0.00000	0.00000	1.52380	1.80051	3.60530	0.00000	0.00000
7	FT BRAGG - WOMACK AMC	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
8	FT CAMPBELL - BLANCHFIELD ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
9	FT CARSON - EVANS ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10	FT EUSTIS - MCDONALD ACH	0.84705	0.00000	0.48872	0.00000	0.00000	419620.30403	0.00000
11	FT GORDON - EISENHOWER AMC	0.00000	0.00000	0.06117	0.05168	0.00000	0.00000	0.00000
12	FT HOOD - DARNALL ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
13	FT IRWIN - WEED ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
14	FT JACKSON - MONCRIEF ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
15	FT KNOX - IRELAND ACH	0.00000	0.79305	0.15569	0.00000	0.00000	286016.56133	0.00000
16	FT LEONARD WOOD - L. WOOD ACH	0.00000	0.00000	0.00000	0.06648	0.00000	37830.68280	0.00000
17	FT POLK - BAYNE-JONES ACH	0.00000	0.00000	0.64209	0.31799	2.18848	483206.25623	0.00000
18	FT RILEY - IRWIN ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
19	FT SILL - REYNOLDS ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
20	FT STEWART - WINN ACH	0.57401	0.00000	0.37093	0.00000	0.00000	44126.19394	0.00000
21	FT WAINWRIGHT - BASSETT ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
22	KEESLER AFB - 81ST MED GRP	0.24922	0.00000	1.43974	0.17681	1.00164	0.00000	0.00000
23	LANGLEY AFB - 1ST MED GRP	2.57326	0.00000	2.03678	0.33887	0.00000	0.00000	0.00000
24	MADIGAN AMC-FT. LEWIS	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
25	MT HOME AFB - 366TH MED GRP	0.00000	0.00000	0.00000	0.00000	0.49352	262619.38337	0.00000
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN I	2.55649	0.00000	0.00000	0.00000	2.22069	874953.45102	0.00000
27	NH BEAUFORT	0.00000	0.00000	0.10598	0.17202	0.00000	0.00000	0.00000
28	NH BREMERTON	0.60055	0.03065	2.98879	0.00000	0.00000	548017.95398	0.00000
29	NH CAMP LEJEUNE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
30	NH CAMP PENDLETON	0.00000	0.00000	0.00000	0.10992	0.00000	0.00000	0.00000
31	NH CHERRY POINT	0.79966	0.00000	0.00000	0.02745	0.59005	0.00000	0.00000
32	NH GREAT LAKES	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
33	NH JACKSONVILLE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
34	NH LEMOORE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
35	NH OAK HARBOR	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
36	NH PENSACOLA	0.00000	0.00000	0.21635	0.02991	0.00000	0.00000	0.00000
37	NH TWENTYNINE PALMS	0.70353	0.00000	0.00000	0.00000	0.00000	204793.80232	0.00000
38	NMC PORTSMOUTH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
39	NMC SAN DIEGO	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
40	NNMC BETHESDA	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
41	OFFUTT AFB - 55TH MED GRP	4.64512	0.35727	1.70235	0.00000	0.00000	0.00000	0.00000
42	SCOTT AFB - 375TH MED GRP	1.77649	0.00000	0.00000	0.00000	0.00000	370385.65860	0.00000
43	TRAVIS AFB - 60TH MED GRP	0.00000	0.00000	2.08376	1.16465	0.56245	0.00000	0.00000
44	TRIPLER AMC-FT SHAFTER	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
45	WALTER REED AMC-WASHINGTON DC	1.10216	0.93889	9.00116	0.00000	0.00000	2402741.00574	0.00000
46	WEST POINT - KELLER ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
47	WILFORD HALL - 59TH MED WING, LACKLAND	2.50778	2.17302	2.84438	1.80553	0.00000	576319.68917	0.00000
48	WILLIAM BEAUMONT AMC-FT. BLISS	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
49	WRIGHT PATTERSON - 74TH MED GRP	1.50303	0.00000	1.49892	1.88456	2.17747	0.00000	0.00000

TARGET REPORT

Input-Oriented
VRS Model Target

DMU No.	DMU Name	Efficient Input Target SADR AVG YEARLY RN FTE	SADR AVG YEARLY PROF FTE	SADR AVG YEARLY ADMIN FTE	SADR AVG YEARLY CLIN FTE	YEARLY PARA-PROF FTE	FY05 Full Cost, Total SADR	Efficient Output Target FY05 Simple RVU, Total
1	ANDREWS AFB - 89TH MED GRP	1.04384	2.02092	1.77650	1.62108	5.31766	2642265.78781	16383.53000
2	BROOKE AMC-FT. SAM HOUSTON	2.55676	2.43198	5.12437	6.15377	13.93672	6814868.77230	35512.11000
3	EGLIN AFB - 96TH MED GRP	1.89627	1.99998	1.84089	2.17477	5.38266	3053473.48126	19200.61000
4	ELMENDORF - 3RD MED GRP	0.93228	1.71263	1.48253	1.55505	4.10553	2150579.69730	12954.82000
5	FT BELVOIR - DEWITT ACH	3.95719	2.69526	4.27634	4.38568	8.99095	5744126.44009	33843.48000
6	FT BENNING - MARTIN ACH	0.75573	0.87200	1.73319	1.76398	4.40026	2303810.64721	12467.88000
7	FT BRAGG - WOMACK AMC	2.71500	4.61917	8.64417	7.94417	16.58917	9467958.53000	50228.68000
8	FT CAMPBELL - BLANCHFIELD ACH	4.45833	7.52500	6.29083	4.80333	23.47083	10424110.27000	41610.59000
9	FT CARSON - EVANS ACH	2.97116	2.70802	2.59575	3.02046	11.14867	4993570.82192	28946.93000
10	FT EUSTIS - MCDONALD ACH	1.03771	1.57285	1.84069	1.71885	5.67089	2798717.68940	16487.04000
11	FT GORDON - EISENHOWER AMC	0.66721	1.71628	1.23816	1.26417	5.00744	1875961.43408	11761.53000
12	FT HOOD - DARNALL ACH	8.25917	10.34000	8.88167	10.91083	28.05667	13328698.66000	63728.08000
13	FT IRWIN - WEED ACH	1.01833	0.00000	0.66000	2.43833	2.29417	1349152.03000	7029.90000
14	FT JACKSON - MONCRIEF ACH	0.00000	0.80167	0.85333	0.94583	3.45667	811159.18000	4112.01000
15	FT KNOX - IRELAND ACH	0.75144	1.81154	1.76950	1.85183	4.59388	2334942.31093	13698.43000
16	FT LEONARD WOOD - L. WOOD ACH	0.54945	0.73921	1.43381	1.61585	3.83057	1812277.82819	9581.15000
17	FT POLK - BAYNE-JONES ACH	0.84162	0.32684	1.10353	2.10792	3.05420	1669518.50061	8746.31000
18	FT RILEY - IRWIN ACH	1.58417	2.99917	2.35333	1.97417	5.47500	3480066.70000	22583.22000
19	FT SILL - REYNOLDS ACH	1.32250	0.80083	2.87417	2.48833	5.04083	3802520.76000	20218.94000
20	FT STEWART - WINN ACH	1.32846	1.66568	2.33846	2.23936	4.71247	3361682.16478	19337.08000
21	FT WAINWRIGHT - BASSETT ACH	0.92083	1.88500	1.45500	2.45333	3.02333	2693183.92000	15530.00000
22	KEESLER AFB - 81ST MED GRP	3.25266	1.11531	4.16641	4.87986	7.81805	4527140.96008	25544.82000
23	LANGLEY AFB - 1ST MED GRP	1.53470	2.89396	1.55515	1.68085	6.65223	3025798.19300	20540.15000
24	MADIGAN AMC-FT. LEWIS	6.47917	2.68000	13.05583	21.47083	16.99500	14338761.07000	71682.71000
25	MT HOME AFB - 366TH MED GRP	0.91727	0.59835	0.81780	1.96241	3.53471	1584643.20103	8901.34000
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHA	1.44023	1.88099	0.81277	1.37819	6.38367	2354621.35127	14943.99000
27	NH BEAUFORT	1.08721	1.28206	1.33916	1.98969	4.08621	2165562.49074	13020.55000
28	NH BREMERTON	1.16927	2.37971	1.93134	1.70531	4.88446	2754505.79816	17512.60000
29	NH CAMP LEJEUNE	2.52583	3.58583	2.55000	3.34000	25.46333	6285380.21000	33028.76000
30	NH CAMP PENDLETON	3.47688	2.01084	3.22899	3.31969	10.64626	5363214.03714	29906.30000
31	NH CHERRY POINT	1.52748	1.36521	0.76908	1.95532	5.50674	2139605.21419	13664.61000
32	NH GREAT LAKES	1.57750	4.02333	0.31417	0.71417	10.92583	2814236.93000	22266.28000
33	NH JACKSONVILLE	5.16833	1.97833	3.53417	3.04917	9.18917	5566396.54000	33446.86000
34	NH LEMOORE	1.88250	0.86917	0.90917	2.15250	5.35917	2390416.33000	12939.97000
35	NH OAK HARBOR	2.99000	0.00000	1.49833	2.58417	3.99833	2193084.08000	7661.61000
36	NH PENSACOLA	0.73046	1.23560	1.49318	1.74362	3.87182	2063494.31264	11752.55000
37	NH TWENTYNINE PALMS	1.09867	1.10306	0.74462	2.10899	4.00678	1873324.23105	11400.55000
38	NMC PORTSMOUTH	14.89417	11.05000	13.98917	35.23583	40.01250	33078786.66000	129353.92000
39	NMC SAN DIEGO	9.66000	13.39250	17.59000	25.38583	34.20583	21561855.77000	98865.47000
40	NNMC BETHESDA	11.46250	6.84333	13.41583	17.80667	24.65667	17255107.53000	88083.30000
41	OFFUTT AFB - 55TH MED GRP	0.73877	1.08825	1.05235	2.02971	2.82860	1859118.49761	10172.46000
42	SCOTT AFB - 375TH MED GRP	1.10239	1.24817	1.18462	1.61710	4.61659	2239912.47365	12723.41000
43	TRAVIS AFB - 60TH MED GRP	2.28301	1.16935	1.51367	2.36538	5.59397	2851933.20444	17222.85000
44	TRIPLER AMC-FT SHAFTER	7.95000	3.57667	16.08917	14.92083	23.64000	13316555.09000	74441.21000
45	WALTER REED AMC-WASHINGTON DC	6.19770	2.67429	7.53847	10.37378	13.18574	9506054.21320	50976.03000
46	WEST POINT - KELLER ACH	0.82333	0.00333	0.34583	1.50083	1.77000	1024520.27000	3420.26000
47	WILFORD HALL - 59TH MED WING, LACKLA	3.82215	2.29997	7.51036	12.38002	10.31621	8771900.47779	44840.39000
48	WILLIAM BEAUMONT AMC-FT. BLISS	2.47583	2.84083	0.03583	4.86833	6.49417	4974071.22000	14407.77000
49	WRIGHT PATTERSON - 74TH MED GRP	3.98193	1.41848	2.93566	3.11521	7.42440	4464145.76988	26383.74000

APPENDIX C

Inpatient Data (SIDR) data utilizing DEAFrontier with Constant Returns to Scale (CRS)

INPUTS AND OUTPUTS

Tmt Parent DMIS ID Name(Query 3 with ARSBSP2)	SIDR RN FTE	SIDR PROF FTE	SIDR ADMIN FTE	SIDR CLIN FTE	SIDR PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR		FY05 Simple RWP, Total
ANDREWS AFB - 89TH MED GRP	7.28	0.76	2.68	10.11	9.60	1763752.98		359.33
BROOKE AMC-FT. SAM HOUSTON	4.82	0.00	0.51	3.33	4.92	637043.16		722.96
EGLIN AFB - 96TH MED GRP	4.64	0.13	0.00	2.56	3.39	413209.79		181.07
ELMENDORF - 3RD MED GRP	9.09	1.38	0.00	2.08	8.92	1704863.90		465.11
FT BELVOIR - DEWITT ACH	14.64	0.98	1.62	1.94	10.60	2116776.45		752.37
FT BENNING - MARTIN ACH	14.27	0.00	0.87	1.62	7.52	1300928.73		471.79
FT BRAGG - WOMACK AMC	25.79	4.47	5.82	4.34	17.18	3042181.98		1657.32
FT CAMPBELL - BLANCHFIELD ACH	24.60	3.48	3.20	4.40	17.93	4770771.84		1200.05
FT CARSON - EVANS ACH	26.81	1.25	2.51	2.40	9.24	4312379.05		881.18
FT EUSTIS - MCDONALD ACH	2.09	0.00	0.28	0.29	1.87	208631.00		185.40
FT GORDON - EISENHOWER AMC	1.13	0.13	0.18	1.56	0.66	175389.87		157.70
FT HOOD - DARNALL ACH	29.06	5.48	3.49	4.52	17.09	5613171.01		1590.92
FT IRWIN - WEED ACH	3.40	0.00	0.38	0.57	2.55	443689.78		161.59
FT JACKSON - MONCRIEF ACH	0.35	0.00	0.05	0.09	0.32	62061.44		38.42
FT KNOX - IRELAND ACH	6.03	1.33	0.62	1.40	4.69	1319511.19		360.30
FT LEONARD WOOD - L. WOOD ACH	6.76	0.07	0.28	1.08	3.84	796721.98		279.54
FT POLK - BAYNE-JONES ACH	2.79	0.00	0.09	0.29	1.49	491943.96		165.27
FT RILEY - IRWIN ACH	9.48	1.35	0.54	1.89	5.06	1025614.62		395.22
FT SILL - REYNOLDS ACH	9.39	0.00	0.67	3.98	4.66	1691504.39		536.37
FT STEWART - WINN ACH	16.71	0.53	1.51	2.70	8.87	2261173.75		684.85
FT WAINWRIGHT - BASSETT ACH	9.41	0.67	0.57	1.07	4.78	1379948.03		444.92
KEESLER AFB - 81ST MED GRP	17.27	0.00	0.18	4.66	20.39	809196.12		562.54
LANGLEY AFB - 1ST MED GRP	14.00	0.75	0.72	1.58	12.65	1759945.14		587.34
MADIGAN AMC-FT. LEWIS	18.87	0.28	1.48	1.80	18.57	3027903.70		1472.56
MT HOME AFB - 366TH MED GRP	5.28	0.23	0.00	0.77	4.54	825379.72		171.65
NELLIS AFB - 99TH MED GRP, O'CALLAGHAN	21.20	0.74	0.38	1.02	20.60	591944.68		396.28
NH BEAUFORT	0.32	0.00	0.03	1.01	0.31	157994.98		230.85
NH BREMERTON	7.51	0.82	0.52	3.00	7.45	1308662.57		320.55
NH CAMP LEJEUNE	19.88	4.00	2.32	3.44	21.83	2268260.23		883.62
NH CAMP PENDLETON	17.37	1.47	2.36	4.28	12.74	2819437.18		899.53
NH CHERRY POINT	4.95	1.52	0.28	2.54	5.26	143166.34		249.29
NH GREAT LAKES	0.33	0.00	0.02	0.12	0.32	57112.54		38.64
NH JACKSONVILLE	10.91	2.28	0.98	3.29	10.19	265331.22		148.08
NH LEMOORE	4.53	0.27	0.04	0.59	3.41	727194.58		242.48
NH OAK HARBOR	6.46	0.00	0.11	1.40	3.18	1050734.27		196.47
NH PENSACOLA	8.50	2.35	1.27	4.80	11.44	1155386.85		251.36
NH TWENTYNINE PALMS	10.14	0.93	0.59	0.99	12.97	2101660.79		192.37
NMC PORTSMOUTH	48.36	6.49	6.02	4.11	39.89	5485192.17		3326.45
NMC SAN DIEGO	41.99	8.40	6.35	10.25	28.56	10239103.73		2697.56
NNMC BETHESDA	31.80	13.19	2.27	2.57	34.75	2451189.33		1333.05
OFFUTT AFB - 55TH MED GRP	4.32	0.14	0.48	1.52	4.47	573433.21		189.94
SCOTT AFB - 375TH MED GRP	1.05	0.00	0.16	0.19	1.69	108501.62		65.85
TRAVIS AFB - 60TH MED GRP	5.42	0.03	0.54	9.46	4.14	1099526.46		416.54
TRIPLER AMC-FT SHAFTER	40.79	1.54	3.04	13.11	27.81	7111043.07		1830.41
WALTER REED AMC-WASHINGTON DC	6.38	0.05	0.66	0.77	7.56	1274739.46		745.20
WEST POINT - KELLER ACH	6.27	0.00	0.46	0.52	2.42	539650.98		117.99
WILFORD HALL - 59TH MED WING, LACKLAN	18.46	0.00	1.03	2.08	15.28	4255637.05		1230.14
WILLIAM BEAUMONT AMC-FT. BLISS	12.56	2.02	1.66	1.43	15.11	211633.29		487.55
WRIGHT PATTERSON - 74TH MED GRP	10.81	0.00	0.57	3.02	16.78	1015977.19		447.56

EFFICIENCY REPORT

DMU No.	DMU Name	Input-Oriented CRS Efficiency	Σλ	RTS	Benchmarks	
1	ANDREWS AFB - 89TH MED GRP	0.14550	1.564	Decreasing	0.164	FT EUSTIS - MCDONALD ACH
2	BROOKE AMC-FT. SAM HOUSTON	0.85503	3.252	Decreasing	0.610	FT EUSTIS - MCDONALD ACH
3	EGLIN AFB - 96TH MED GRP	1.00000	1.000	Constant	1.000	EGLIN AFB - 96TH MED GRP
4	ELMENDORF - 3RD MED GRP	1.00000	1.000	Constant	1.000	ELMENDORF - 3RD MED GRP
5	FT BELVOIR - DEWITT ACH	0.61569	1.384	Decreasing	0.542	NH BEAUFORT
6	FT BENNING - MARTIN ACH	0.57145	2.565	Decreasing	1.518	FT EUSTIS - MCDONALD ACH
7	FT BRAGG - WOMACK AMC	0.75206	4.195	Decreasing	0.867	FT EUSTIS - MCDONALD ACH
8	FT CAMPBELL - BLANCHFIELD ACH	0.52289	2.561	Decreasing	1.378	NH BEAUFORT
9	FT CARSON - EVANS ACH	0.72750	1.936	Decreasing	1.091	NH BEAUFORT
10	FT EUSTIS - MCDONALD ACH	1.00000	1.000	Constant	1.000	FT EUSTIS - MCDONALD ACH
11	FT GORDON - EISENHOWER AMC	0.60638	0.669	Increasing	0.656	NH BEAUFORT
12	FT HOOD - DARNALL ACH	0.70556	3.520	Decreasing	2.007	NH BEAUFORT
13	FT IRWIN - WEED ACH	0.55320	0.876	Increasing	0.553	FT EUSTIS - MCDONALD ACH
14	FT JACKSON - MONCRIEF ACH	0.97233	0.198	Increasing	0.158	FT EUSTIS - MCDONALD ACH
15	FT KNOX - IRELAND ACH	0.55310	0.843	Increasing	0.521	NH BEAUFORT
16	FT LEONARD WOOD - L. WOOD ACH	0.57037	0.802	Increasing	0.141	FT POLK - BAYNE-JONES ACH
17	FT POLK - BAYNE-JONES ACH	1.00000	1.000	Constant	1.000	FT POLK - BAYNE-JONES ACH
18	FT RILEY - IRWIN ACH	0.50628	1.022	Decreasing	0.712	NH BEAUFORT
19	FT SILL - REYNOLDS ACH	0.46491	2.642	Decreasing	0.032	FT EUSTIS - MCDONALD ACH
20	FT STEWART - WINN ACH	0.55122	1.619	Decreasing	1.014	NH BEAUFORT
21	FT WAINWRIGHT - BASSETT ACH	0.75251	0.908	Increasing	0.451	NH BEAUFORT
22	KEESLER AFB - 81ST MED GRP	0.51399	2.470	Decreasing	0.071	FT EUSTIS - MCDONALD ACH
23	LANGLEY AFB - 1ST MED GRP	0.58177	1.175	Decreasing	0.288	NH BEAUFORT
24	MADIGAN AMC-FT. LEWIS	0.86409	2.061	Decreasing	0.126	NH LEMOORE
25	MT HOME AFB - 366TH MED GRP	1.00000	1.000	Constant	1.000	MT HOME AFB - 366TH MED GRP
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	0.84120	1.282	Decreasing	0.520	FT EUSTIS - MCDONALD ACH
27	NH BEAUFORT	1.00000	1.000	Constant	1.000	NH BEAUFORT
28	NH BREMERTON	0.29536	0.935	Increasing	0.711	NH BEAUFORT
29	NH CAMP LEJEUNE	0.46051	3.976	Decreasing	3.287	FT EUSTIS - MCDONALD ACH
30	NH CAMP PENDLETON	0.48164	2.223	Decreasing	1.472	NH BEAUFORT
31	NH CHERRY POINT	1.00000	1.000	Constant	1.000	NH CHERRY POINT
32	NH GREAT LAKES	0.95627	0.194	Increasing	0.041	FT EUSTIS - MCDONALD ACH
33	NH JACKSONVILLE	0.29880	0.464	Increasing	0.175	NH BEAUFORT
34	NH LEMOORE	1.00000	1.000	Constant	1.000	NH LEMOORE
35	NH OAK HARBOR	0.48957	0.964	Increasing	0.399	FT POLK - BAYNE-JONES ACH
36	NH PENSACOLA	0.17686	1.143	Decreasing	0.439	FT EUSTIS - MCDONALD ACH
37	NH TWENTYNINE PALMS	0.24691	0.351	Increasing	0.138	NH LEMOORE
38	NMC PORTSMOUTH	0.94317	8.042	Decreasing	4.763	FT EUSTIS - MCDONALD ACH
39	NMC SAN DIEGO	0.62429	6.860	Decreasing	4.694	NH BEAUFORT
40	NNMC BETHESDA	0.72675	5.148	Decreasing	4.379	FT EUSTIS - MCDONALD ACH
41	OFFUTT AFB - 55TH MED GRP	0.33385	0.853	Increasing	0.481	FT EUSTIS - MCDONALD ACH
42	SCOTT AFB - 375TH MED GRP	0.65517	0.348	Increasing	0.318	FT EUSTIS - MCDONALD ACH
43	TRAVIS AFB - 60TH MED GRP	0.25890	1.801	Decreasing	1.797	NH BEAUFORT
44	TRIPLER AMC-FT SHAFTER	0.37770	5.197	Decreasing	3.971	NH BEAUFORT
45	WALTER REED AMC-WASHINGTON DC	1.00000	1.000	Constant	1.000	WALTER REED AMC-WASHINGTON DC
46	WEST POINT - KELLER ACH	0.42878	0.662	Increasing	0.279	FT EUSTIS - MCDONALD ACH
47	WILFORD HALL - 59TH MED WING, LACKLAND	1.00000	1.000	Constant	1.000	WILFORD HALL - 59TH MED WING, LACKLAND
48	WILLIAM BEAUMONT AMC-FT. BLISS	1.00000	1.000	Constant	1.000	WILLIAM BEAUMONT AMC-FT. BLISS
49	WRIGHT PATTERSON - 74TH MED GRP	0.47367	2.173	Decreasing	0.762	FT EUSTIS - MCDONALD ACH

SLACK REPORT

Input-Oriented
CRS Model Slacks

DMU No.	DMU Name	Input Slacks: SIDR AVG YEARLY RN FTE	SIDR AVG YEARLY PROF FTE	SIDR AVG YEARLY ADMIN FTE	SIDR AVG YEARLY CLIN FTE	SIDR AVG YEARLY PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR	Output Slacks: FY05 Simple RWP, Total
1	ANDREWS AFB - 89TH MED GRP	0.00	0.07	0.27	0.00	0.33	0.00	0.00
2	BROOKE AMC-FT. SAM HOUSTON	2.00	0.00	0.19	0.00	2.24	0.00	0.00
3	EGLIN AFB - 96TH MED GRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	ELMENDORF - 3RD MED GRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	FT BELVOIR - DEWITT ACH	3.48	0.56	0.43	0.00	0.00	144776.22	0.00
6	FT BENNING - MARTIN ACH	2.72	0.00	0.00	0.00	0.21	0.00	0.00
7	FT BRAGG - WOMACK AMC	7.94	3.29	3.15	0.00	0.00	0.00	0.00
8	FT CAMPBELL - BLANCHFIELD ACH	4.88	1.76	0.85	0.00	0.00	768173.77	0.00
9	FT CARSON - EVANS ACH	13.77	0.87	1.24	0.00	0.00	1888480.51	0.00
10	FT EUSTIS - MCDONALD ACH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	FT GORDON - EISENHOWER AMC	0.32	0.05	0.07	0.26	0.00	0.00	0.00
12	FT HOOD - DARNALL ACH	10.22	3.79	1.41	0.00	0.00	1714509.44	0.00
13	FT IRWIN - WEED ACH	0.04	0.00	0.03	0.00	0.00	0.00	0.00
14	FT JACKSON - MONCRIEF ACH	0.00	0.00	0.01	0.00	0.00	21104.98	0.00
15	FT KNOX - IRELAND ACH	1.12	0.72	0.12	0.00	0.00	236936.38	0.00
16	FT LEONARD WOOD - L. WOOD ACH	1.62	0.00	0.00	0.00	0.02	0.00	0.00
17	FT POLK - BAYNE-JONES ACH	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	FT RILEY - IRWIN ACH	2.60	0.67	0.05	0.00	0.00	11873.93	0.00
19	FT SILL - REYNOLDS ACH	0.75	0.00	0.16	0.00	0.00	0.00	0.00
20	FT STEWART - WINN ACH	5.03	0.26	0.41	0.00	0.00	315093.46	0.00
21	FT WAINWRIGHT - BASSETT ACH	4.02	0.48	0.12	0.00	0.00	384195.35	0.00
22	KEESLER AFB - 81ST MED GRP	7.80	0.00	0.00	0.00	9.52	0.00	0.00
23	LANGLEY AFB - 1ST MED GRP	2.91	0.33	0.00	0.00	1.72	0.00	0.00
24	MADIGAN AMC-FT. LEWIS	3.40	0.11	0.00	0.00	1.00	57938.87	0.00
25	MT HOME AFB - 366TH MED GRP	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	NELLIS AFB - 99TH MED GRP, O'CALLAGH	15.04	0.61	0.00	0.00	14.37	0.00	0.00
27	NH BEAUFORT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	NH BREMERTON	0.60	0.23	0.00	0.00	0.37	0.00	0.00
29	NH CAMP LEJEUNE	0.71	1.83	0.00	0.00	2.07	0.00	0.00
30	NH CAMP PENDLETON	3.11	0.67	0.60	0.00	0.00	168008.13	0.00
31	NH CHERRY POINT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	NH GREAT LAKES	0.02	0.00	0.00	0.00	0.10	0.00	0.00
33	NH JACKSONVILLE	0.64	0.17	0.00	0.24	0.00	0.00	0.00
34	NH LEMOORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	NH OAK HARBOR	1.87	0.00	0.00	0.00	0.79	228947.96	0.00
36	NH PENSACOLA	0.00	0.36	0.03	0.00	0.55	0.00	0.00
37	NH TWENTYNINE PALMS	0.52	0.18	0.00	0.00	1.12	146683.26	0.00
38	NMC PORTSMOUTH	14.75	5.96	2.21	0.00	3.95	0.00	0.00
39	NMC SAN DIEGO	10.91	5.14	2.41	0.00	0.00	2889645.72	0.00
40	NNMC BETHESDA	9.66	9.55	0.00	0.00	11.99	0.00	0.00
41	OFFUTT AFB - 55TH MED GRP	0.14	0.05	0.00	0.00	0.27	0.00	0.00
42	SCOTT AFB - 375TH MED GRP	0.01	0.00	0.02	0.00	0.51	0.00	0.00
43	TRAVIS AFB - 60TH MED GRP	0.79	0.00	0.08	0.63	0.46	0.00	0.00
44	TRIPLER AMC-FT SHAFTER	6.32	0.52	0.23	0.00	0.00	495499.57	0.00
45	WALTER REED AMC-WASHINGTON DC	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	WEST POINT - KELLER ACH	1.15	0.00	0.09	0.00	0.00	0.00	0.00
47	WILFORD HALL - 59TH MED WING, LACK	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	WILLIAM BEAUMONT AMC-FT. BLISS	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	WRIGHT PATTERSON - 74TH MED GRP	2.34	0.00	0.00	0.00	5.73	0.00	0.00

TARGET REPORT

Input-Oriented
CRS Model Target

DMU No.	DMU Name	Efficient Input Target SIDR AVG YEARLY RN FTE	SIDR AVG YEARLY PROF FTE	SIDR AVG YEARLY ADMIN FTE	SIDR AVG YEARLY CLIN FTE	YEARLY PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR	Efficient Output FY05 Simple RWP, Total
1	ANDREWS AFB - 89TH MED GRP	1.05896	0.04451	0.12198	1.47084	1.06983	256617.57810	359.32960
2	BROOKE AMC-FT. SAM HOUSTON	2.11919	0.00000	0.24539	2.84298	1.96680	544692.67189	722.95590
3	EGLIN AFB - 96TH MED GRP	4.63667	0.12667	0.00000	2.56083	3.39417	413209.79000	181.06990
4	ELMENDORF - 3RD MED GRP	9.09333	1.38000	0.00000	2.08333	8.91750	1704863.90000	465.10610
5	FT BELVOIR - DEWITT ACH	5.53891	0.04278	0.56846	1.19239	6.52836	1158500.91401	752.36550
6	FT BENNING - MARTIN ACH	5.43992	0.00000	0.49812	0.92528	4.08502	743418.45637	471.79270
7	FT BRAGG - WOMACK AMC	11.44999	0.07197	1.22461	3.26456	12.91662	2287900.69116	1657.32440
8	FT CAMPBELL - BLANCHFIELD ACH	7.98581	0.06016	0.81738	2.29809	9.37320	1726404.04338	1200.05370
9	FT CARSON - EVANS ACH	5.73184	0.04292	0.58630	1.74904	6.72091	1248783.54187	881.17600
10	FT EUSTIS - MCDONALD ACH	2.09083	0.00000	0.27583	0.28667	1.87000	208631.00000	185.39750
11	FT GORDON - EISENHOWER AMC	0.37205	0.02617	0.04066	0.68089	0.40072	106353.74636	157.70420
12	FT HOOD - DARNALL ACH	10.28775	0.07691	1.05213	3.18619	12.05978	2245919.35036	1590.92290
13	FT IRWIN - WEED ACH	1.84306	0.00000	0.17664	0.31348	1.41249	245447.30990	161.59010
14	FT JACKSON - MONCRIEF ACH	0.34356	0.00000	0.04482	0.08508	0.30833	39239.06641	38.42400
15	FT KNOX - IRELAND ACH	2.21977	0.01637	0.22669	0.77296	2.59634	492883.65946	360.29660
16	FT LEONARD WOOD - L. WOOD ACH	2.24125	0.03802	0.15780	0.61648	2.17577	454429.81076	279.53690
17	FT POLK - BAYNE-JONES ACH	2.78833	0.00000	0.09167	0.28500	1.48750	491943.96000	165.27380
18	FT RILEY - IRWIN ACH	2.20228	0.01575	0.22418	0.95645	2.56305	507376.43805	395.22060
19	FT SILL - REYNOLDS ACH	3.61602	0.00000	0.15372	1.84803	2.16805	786404.38868	536.37030
20	FT STEWART - WINN ACH	4.18042	0.03075	0.42680	1.48736	4.88745	931301.59749	684.84500
21	FT WAINWRIGHT - BASSETT ACH	3.05973	0.02325	0.31346	0.80581	3.59635	654223.66438	444.91690
22	KEESLER AFB - 81ST MED GRP	1.07825	0.00000	0.09380	2.39474	0.96086	415915.21997	562.53740
23	LANGLEY AFB - 1ST MED GRP	5.23540	0.10688	0.41790	0.92064	5.63865	1023875.42675	587.33600
24	MADIGAN AMC-FT. LEWIS	12.90939	0.13268	1.27525	1.55608	15.05155	2558439.22237	1472.55660
25	MT HOME AFB - 366TH MED GRP	5.28333	0.22833	0.00000	0.77417	4.54083	825379.72000	171.65320
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAI	2.78969	0.01224	0.31685	0.86012	2.95559	497941.02634	396.27980
27	NH BEAUFORT	0.31917	0.00000	0.02917	1.01000	0.31250	157994.98000	230.84570
28	NH BREMERTON	1.61724	0.01608	0.15482	0.88607	1.82837	386521.57259	320.55250
29	NH CAMP LEJEUNE	8.44816	0.01137	1.06723	1.58377	7.98311	1044556.58709	883.61570
30	NH CAMP PENDLETON	5.25814	0.03818	0.53610	2.06223	6.13450	1189947.64918	899.52710
31	NH CHERRY POINT	4.94750	1.52000	0.28083	2.54167	5.26000	143166.34000	249.29040
32	NH GREAT LAKES	0.29664	0.00000	0.01992	0.11874	0.20179	54614.95897	38.63650
33	NH JACKSONVILLE	2.62221	0.51363	0.29258	0.74520	3.04555	79281.79622	148.07970
34	NH LEMOORE	4.53083	0.27167	0.03667	0.58750	3.41417	727194.58000	242.48220
35	NH OAK HARBOR	1.29193	0.00000	0.05304	0.68499	0.76967	285460.91423	196.47270
36	NH PENSACOLA	1.50313	0.05947	0.18973	0.84876	1.47674	204337.04045	251.36230
37	NH TWENTYNINE PALMS	1.98524	0.04837	0.14506	0.24444	2.08251	372228.07457	192.36690
38	NMC PORTSMOUTH	30.86398	0.16668	3.46687	3.87642	33.68143	5173462.57423	3326.45290
39	NMC SAN DIEGO	15.30739	0.11010	1.55916	6.39950	17.83183	3502535.05166	2697.56190
40	NNMC BETHESDA	13.44930	0.03397	1.64972	1.86835	13.27017	1781400.89238	1333.04730
41	OFFUTT AFB - 55TH MED GRP	1.29938	0.00147	0.16164	0.50661	1.22509	191439.73302	189.93620
42	SCOTT AFB - 375TH MED GRP	0.67489	0.00000	0.08865	0.12121	0.60441	71086.70073	65.85440
43	TRAVIS AFB - 60TH MED GRP	0.61654	0.00690	0.05810	1.82005	0.61327	284670.25272	416.54010
44	TRIPLER AMC-FT SHAFTER	9.08449	0.06232	0.92092	4.95005	10.50473	2190328.98821	1830.41360
45	WALTER REED AMC-WASHINGTON DC	6.37583	0.05083	0.65667	0.76583	7.55583	1274739.46000	745.19650
46	WEST POINT - KELLER ACH	1.53921	0.00000	0.10930	0.22189	1.03836	231391.19067	117.98650
47	WILFORD HALL - 59TH MED WING, LACKLAI	18.46000	0.00000	1.02500	2.07917	15.28417	4255637.05000	1230.13780
48	WILLIAM BEAUMONT AMC-FT. BLISS	12.55750	2.01917	1.66167	1.43083	15.10667	211633.29000	487.55070
49	WRIGHT PATTERSON - 74TH MED GRP	2.77815	0.00000	0.26999	1.42813	2.21569	481242.06305	447.55890

APPENDIX D

Inpatient Data (SIDR) data utilizing DEAFrontier with Variable Returns to Scale (VRS)

INPUTS AND OUTPUTS

Tmt Parent DMIS ID Name(Query 3 with ARSBSP2)	SIDR RN FTE	SIDR PROF FTE	SIDR ADMIN FTE	SIDR CLIN FTE	SIDR PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR		FY05 Simple RWP, Total
ANDREWS AFB - 89TH MED GRP	7.28	0.76	2.68	10.11	9.60	1763752.98		359.33
BROOKE AMC-FT. SAM HOUSTON	4.82	0.00	0.51	3.33	4.92	637043.16		722.96
EGLIN AFB - 96TH MED GRP	4.64	0.13	0.00	2.56	3.39	413209.79		181.07
ELMENDORF - 3RD MED GRP	9.09	1.38	0.00	2.08	8.92	1704863.90		465.11
FT BELVOIR - DEWITT ACH	14.64	0.98	1.62	1.94	10.60	2116776.45		752.37
FT BENNING - MARTIN ACH	14.27	0.00	0.87	1.62	7.52	1300928.73		471.79
FT BRAGG - WOMACK AMC	25.79	4.47	5.82	4.34	17.18	3042181.98		1657.32
FT CAMPBELL - BLANCHFIELD ACH	24.60	3.48	3.20	4.40	17.93	4770771.84		1200.05
FT CARSON - EVANS ACH	26.81	1.25	2.51	2.40	9.24	4312379.05		881.18
FT EUSTIS - MCDONALD ACH	2.09	0.00	0.28	0.29	1.87	208631.00		185.40
FT GORDON - EISENHOWER AMC	1.13	0.13	0.18	1.56	0.66	175389.87		157.70
FT HOOD - DARNALL ACH	29.06	5.48	3.49	4.52	17.09	5613171.01		1590.92
FT IRWIN - WEED ACH	3.40	0.00	0.38	0.57	2.55	443689.78		161.59
FT JACKSON - MONCRIEF ACH	0.35	0.00	0.05	0.09	0.32	62061.44		38.42
FT KNOX - IRELAND ACH	6.03	1.33	0.62	1.40	4.69	1319511.19		360.30
FT LEONARD WOOD - L. WOOD ACH	6.76	0.07	0.28	1.08	3.84	796721.98		279.54
FT POLK - BAYNE-JONES ACH	2.79	0.00	0.09	0.29	1.49	491943.96		165.27
FT RILEY - IRWIN ACH	9.48	1.35	0.54	1.89	5.06	1025614.62		395.22
FT SILL - REYNOLDS ACH	9.39	0.00	0.67	3.98	4.66	1691504.39		536.37
FT STEWART - WINN ACH	16.71	0.53	1.51	2.70	8.87	2261173.75		684.85
FT WAINWRIGHT - BASSETT ACH	9.41	0.67	0.57	1.07	4.78	1379948.03		444.92
KEESLER AFB - 81ST MED GRP	17.27	0.00	0.18	4.66	20.39	809196.12		562.54
LANGLEY AFB - 1ST MED GRP	14.00	0.75	0.72	1.58	12.65	1759945.14		587.34
MADIGAN AMC-FT. LEWIS	18.87	0.28	1.48	1.80	18.57	3027903.70		1472.56
MT HOME AFB - 366TH MED GRP	5.28	0.23	0.00	0.77	4.54	825379.72		171.65
NELLIS AFB - 99TH MED GRP, O'CALLAGHAN	21.20	0.74	0.38	1.02	20.60	591944.68		396.28
NH BEAUFORT	0.32	0.00	0.03	1.01	0.31	157994.98		230.85
NH BREMERTON	7.51	0.82	0.52	3.00	7.45	1308662.57		320.55
NH CAMP LEJEUNE	19.88	4.00	2.32	3.44	21.83	2268260.23		883.62
NH CAMP PENDLETON	17.37	1.47	2.36	4.28	12.74	2819437.18		899.53
NH CHERRY POINT	4.95	1.52	0.28	2.54	5.26	143166.34		249.29
NH GREAT LAKES	0.33	0.00	0.02	0.12	0.32	57112.54		38.64
NH JACKSONVILLE	10.91	2.28	0.98	3.29	10.19	265331.22		148.08
NH LEMOORE	4.53	0.27	0.04	0.59	3.41	727194.58		242.48
NH OAK HARBOR	6.46	0.00	0.11	1.40	3.18	1050734.27		196.47
NH PENSACOLA	8.50	2.35	1.27	4.80	11.44	1155386.85		251.36
NH TWENTYNINE PALMS	10.14	0.93	0.59	0.99	12.97	2101660.79		192.37
NMC PORTSMOUTH	48.36	6.49	6.02	4.11	39.89	5485192.17		3326.45
NMC SAN DIEGO	41.99	8.40	6.35	10.25	28.56	10239103.73		2697.56
NNMC BETHESDA	31.80	13.19	2.27	2.57	34.75	2451189.33		1333.05
OFFUTT AFB - 55TH MED GRP	4.32	0.14	0.48	1.52	4.47	573433.21		189.94
SCOTT AFB - 375TH MED GRP	1.05	0.00	0.16	0.19	1.69	108501.62		65.85
TRAVIS AFB - 60TH MED GRP	5.42	0.03	0.54	9.46	4.14	1099526.46		416.54
TRIPLER AMC-FT SHAFTER	40.79	1.54	3.04	13.11	27.81	7111043.07		1830.41
WALTER REED AMC-WASHINGTON DC	6.38	0.05	0.66	0.77	7.56	1274739.46		745.20
WEST POINT - KELLER ACH	6.27	0.00	0.46	0.52	2.42	539650.98		117.99
WILFORD HALL - 59TH MED WING, LACKLAN	18.46	0.00	1.03	2.08	15.28	4255637.05		1230.14
WILLIAM BEAUMONT AMC-FT. BLISS	12.56	2.02	1.66	1.43	15.11	211633.29		487.55
WRIGHT PATTERSON - 74TH MED GRP	10.81	0.00	0.57	3.02	16.78	1015977.19		447.56

EFFICIENCY REPORT

DMU No.	DMU Name	Input-Oriented VRS Efficiency	Benchmarks	
1	ANDREWS AFB - 89TH MED GRP	0.20522	0.261	BROOKE AMC-FT. SAM HOUSTON
2	BROOKE AMC-FT. SAM HOUSTON	1.00000	1.000	BROOKE AMC-FT. SAM HOUSTON
3	EGLIN AFB - 96TH MED GRP	1.00000	1.000	EGLIN AFB - 96TH MED GRP
4	ELMENDORF - 3RD MED GRP	1.00000	1.000	ELMENDORF - 3RD MED GRP
5	FT BELVOIR - DEWITT ACH	0.67537	0.206	BROOKE AMC-FT. SAM HOUSTON
6	FT BENNING - MARTIN ACH	0.75051	0.207	BROOKE AMC-FT. SAM HOUSTON
7	FT BRAGG - WOMACK AMC	0.99870	0.614	BROOKE AMC-FT. SAM HOUSTON
8	FT CAMPBELL - BLANCHFIELD ACH	0.66082	0.599	BROOKE AMC-FT. SAM HOUSTON
9	FT CARSON - EVANS ACH	0.88548	0.459	BROOKE AMC-FT. SAM HOUSTON
10	FT EUSTIS - MCDONALD ACH	1.00000	1.000	FT EUSTIS - MCDONALD ACH
11	FT GORDON - EISENHOWER AMC	0.67776	0.598	NH BEAUFORT
12	FT HOOD - DARNALL ACH	0.95127	0.640	BROOKE AMC-FT. SAM HOUSTON
13	FT IRWIN - WEED ACH	0.55410	0.536	FT EUSTIS - MCDONALD ACH
14	FT JACKSON - MONCRIEF ACH	1.00000	1.000	FT JACKSON - MONCRIEF ACH
15	FT KNOX - IRELAND ACH	0.55426	0.172	FT JACKSON - MONCRIEF ACH
16	FT LEONARD WOOD - L. WOOD ACH	0.57301	0.136	FT POLK - BAYNE-JONES ACH
17	FT POLK - BAYNE-JONES ACH	1.00000	1.000	FT POLK - BAYNE-JONES ACH
18	FT RILEY - IRWIN ACH	0.51247	0.014	BROOKE AMC-FT. SAM HOUSTON
19	FT SILL - REYNOLDS ACH	0.68098	0.621	BROOKE AMC-FT. SAM HOUSTON
20	FT STEWART - WINN ACH	0.65617	0.383	BROOKE AMC-FT. SAM HOUSTON
21	FT WAINWRIGHT - BASSETT ACH	0.75325	0.100	FT JACKSON - MONCRIEF ACH
22	KEESLER AFB - 81ST MED GRP	1.00000	1.000	KEESLER AFB - 81ST MED GRP
23	LANGLEY AFB - 1ST MED GRP	0.60039	0.103	ELMENDORF - 3RD MED GRP
24	MADIGAN AMC-FT. LEWIS	1.00000	1.000	MADIGAN AMC-FT. LEWIS
25	MT HOME AFB - 366TH MED GRP	1.00000	1.000	MT HOME AFB - 366TH MED GRP
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	0.86013	0.104	FT EUSTIS - MCDONALD ACH
27	NH BEAUFORT	1.00000	1.000	NH BEAUFORT
28	NH BREMERTON	0.29577	0.705	NH BEAUFORT
29	NH CAMP LEJEUNE	0.53311	0.263	BROOKE AMC-FT. SAM HOUSTON
30	NH CAMP PENDLETON	0.62343	0.658	BROOKE AMC-FT. SAM HOUSTON
31	NH CHERRY POINT	1.00000	1.000	NH CHERRY POINT
32	NH GREAT LAKES	1.00000	1.000	NH GREAT LAKES
33	NH JACKSONVILLE	0.36371	0.127	NH CHERRY POINT
34	NH LEMOORE	1.00000	1.000	NH LEMOORE
35	NH OAK HARBOR	0.49076	0.390	FT POLK - BAYNE-JONES ACH
36	NH PENSACOLA	0.18071	0.216	FT EUSTIS - MCDONALD ACH
37	NH TWENTYNINE PALMS	0.26717	0.465	FT JACKSON - MONCRIEF ACH
38	NMC PORTSMOUTH	1.00000	1.000	NMC PORTSMOUTH
39	NMC SAN DIEGO	1.00000	1.000	NMC SAN DIEGO
40	NNMC BETHESDA	0.84379	0.233	BROOKE AMC-FT. SAM HOUSTON
41	OFFUTT AFB - 55TH MED GRP	0.33599	0.487	FT EUSTIS - MCDONALD ACH
42	SCOTT AFB - 375TH MED GRP	0.79433	0.143	FT EUSTIS - MCDONALD ACH
43	TRAVIS AFB - 60TH MED GRP	0.49612	0.377	BROOKE AMC-FT. SAM HOUSTON
44	TRIPLER AMC-FT SHAFTER	0.96467	0.807	MADIGAN AMC-FT. LEWIS
45	WALTER REED AMC-WASHINGTON DC	1.00000	1.000	WALTER REED AMC-WASHINGTON DC
46	WEST POINT - KELLER ACH	0.43139	0.234	FT EUSTIS - MCDONALD ACH
47	WILFORD HALL - 59TH MED WING, LACKLAND	1.00000	1.000	WILFORD HALL - 59TH MED WING, LACKLAND
48	WILLIAM BEAUMONT AMC-FT. BLISS	1.00000	1.000	WILLIAM BEAUMONT AMC-FT. BLISS
49	WRIGHT PATTERSON - 74TH MED GRP	0.56023	0.352	BROOKE AMC-FT. SAM HOUSTON

SLACK REPORT

Input-Oriented
VRS Model Slacks

DMU No.	DMU Name	Input Slacks SIDR AVG YEARLY RN FTE	SIDR AVG YEARLY PROF FTE	SIDR AVG YEARLY ADMIN FTE	SIDR AVG YEARLY CLIN FTE	SIDR AVG YEARLY PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR	Output Slacks FY05 Simple RWP, Total
1	ANDREWS AFB - 89TH MED GRP	0.00000	0.15631	0.39683	0.46014	0.45301	78880.70102	0.00000
2	BROOKE AMC-FT. SAM HOUSTON	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	EGLIN AFB - 96TH MED GRP	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	ELMENDORF - 3RD MED GRP	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5	FT BELVOIR - DEWITT ACH	3.64302	0.59444	0.44445	0.00000	0.00000	267002.01597	0.00000
6	FT BENNING - MARTIN ACH	5.30956	0.00000	0.20494	0.00000	0.88964	0.00000	0.00000
7	FT BRAGG - WOMACK AMC	4.84336	1.74305	3.14157	0.02198	0.00000	0.00000	0.00000
8	FT CAMPBELL - BLANCHFIELD ACH	3.20004	1.10901	0.57329	0.00000	0.00000	1495963.04323	0.00000
9	FT CARSON - EVANS ACH	15.69767	0.71610	1.33001	0.00000	0.00000	2597768.39897	0.00000
10	FT EUSTIS - MCDONALD ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11	FT GORDON - EISENHOWER AMC	0.33529	0.06647	0.08134	0.38847	0.00000	0.00000	0.00000
12	FT HOOD - DARNALL ACH	7.84870	2.66007	0.79063	0.00000	0.00000	2422646.37919	0.00000
13	FT IRWIN - WEED ACH	0.05113	0.00000	0.02965	0.00000	0.00000	0.00000	0.00000
14	FT JACKSON - MONCRIEF ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
15	FT KNOX - IRELAND ACH	1.10584	0.72203	0.11286	0.00000	0.00000	237063.52615	0.00000
16	FT LEONARD WOOD - L. WOOD ACH	1.60507	0.00014	0.00000	0.00000	0.00000	0.00000	0.00000
17	FT POLK - BAYNE-JONES ACH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
18	FT RILEY - IRWIN ACH	2.62105	0.67628	0.04707	0.00000	0.00000	19085.26664	0.00000
19	FT SILL - REYNOLDS ACH	3.28019	0.00000	0.13064	0.25964	0.00000	696469.71367	0.00000
20	FT STEWART - WINN ACH	5.79423	0.32207	0.45428	0.00000	0.00000	565731.99943	0.00000
21	FT WAINWRIGHT - BASSETT ACH	4.01541	0.48475	0.11446	0.00000	0.00000	384360.55851	0.00000
22	KEESLER AFB - 81ST MED GRP	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
23	LANGLEY AFB - 1ST MED GRP	3.13898	0.26360	0.00000	0.00000	1.62110	0.00000	0.00000
24	MADIGAN AMC-FT. LEWIS	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
25	MT HOME AFB - 366TH MED GRP	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN	15.29339	0.52225	0.00000	0.00000	14.32694	0.00000	0.00000
27	NH BEAUFORT	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
28	NH BREMERTON	0.59670	0.22798	0.00000	0.00000	0.36980	0.00000	0.00000
29	NH CAMP LEJEUNE	0.14266	1.19724	0.00000	0.00000	0.73957	0.00000	0.00000
30	NH CAMP PENDLETON	2.72884	0.47439	0.55998	0.00000	0.00000	627128.25859	0.00000
31	NH CHERRY POINT	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
32	NH GREAT LAKES	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
33	NH JACKSONVILLE	0.80161	0.26372	0.00000	0.52485	0.03816	0.00000	0.00000
34	NH LEMOORE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
35	NH OAK HARBOR	1.88713	0.00000	0.00000	0.00000	0.78835	232011.44013	0.00000
36	NH PENSACOLA	0.00000	0.31906	0.04103	0.00000	0.41215	0.00000	0.00000
37	NH TWENTYNINE PALMS	0.52162	0.24047	0.00000	0.00000	1.61845	153358.69975	0.00000
38	NMC PORTSMOUTH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
39	NMC SAN DIEGO	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
40	NNMC BETHESDA	10.76303	9.50465	0.00000	0.00000	14.52573	0.00000	0.00000
41	OFFUTT AFB - 55TH MED GRP	0.12652	0.04585	0.00000	0.00000	0.25915	0.00000	0.00000
42	SCOTT AFB - 375TH MED GRP	0.23483	0.00000	0.04555	0.00000	0.80501	0.00000	0.00000
43	TRAVIS AFB - 60TH MED GRP	0.67278	0.01323	0.05855	2.80847	0.00000	206732.35324	0.00000
44	TRIPLER AMC-FT SHAFTER	14.78439	0.00000	0.57573	10.39617	4.14221	3357542.81652	0.00000
45	WALTER REED AMC-WASHINGTON DC	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
46	WEST POINT - KELLER ACH	1.18807	0.00000	0.08266	0.00000	0.00000	0.00000	0.00000
47	WILFORD HALL - 59TH MED WING, LACKLAN	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
48	WILLIAM BEAUMONT AMC-FT. BLISS	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
49	WRIGHT PATTERSON - 74TH MED GRP	2.66182	0.00000	0.00000	0.00000	6.20852	0.00000	0.00000

TARGET REPORT

Input-Oriented
VRS Model Target

DMU No.	DMU Name	Efficient Input Target SIDR AVG YEARLY RN FTE	SIDR AVG YEARLY PROF FTE	SIDR AVG YEARLY ADMIN FTE	SIDR AVG YEARLY CLIN FTE	YEARLY PARA-PROF FTE	FY05 Full Cost Direct, Total SIDR	Efficient Output Target FY05 Simple RWP, Total
1	ANDREWS AFB - 89TH MED GRP	1.49363	0.00000	0.15384	1.61442	1.51655	283068.54778	359.32960
2	BROOKE AMC-FT. SAM HOUSTON	4.81750	0.00000	0.50667	3.32500	4.92417	637043.16000	722.95590
3	EGLIN AFB - 96TH MED GRP	4.63667	0.12667	0.00000	2.56083	3.39417	413209.79000	181.06990
4	ELMENDORF - 3RD MED GRP	9.09333	1.38000	0.00000	2.08333	8.91750	1704863.90000	465.10610
5	FT BELVOIR - DEWITT ACH	6.24608	0.06968	0.65021	1.30797	7.16118	1162605.76982	752.36550
6	FT BENNING - MARTIN ACH	5.40141	0.00000	0.44926	1.21519	4.75229	976354.91076	471.79270
7	FT BRAGG - WOMACK AMC	20.90820	2.71782	2.67172	4.31322	17.15273	3038236.69471	1657.32440
8	FT CAMPBELL - BLANCHFIELD ACH	13.05841	1.18845	1.54024	2.90432	11.84580	1656671.69182	1200.05370
9	FT CARSON - EVANS ACH	8.03898	0.39222	0.89180	2.12883	8.18032	1220738.44187	881.17600
10	FT EUSTIS - MCDONALD ACH	2.09083	0.00000	0.27583	0.28667	1.87000	208631.00000	185.39750
11	FT GORDON - EISENHOWER AMC	0.43341	0.01826	0.04065	0.66602	0.44789	118872.93805	157.70420
12	FT HOOD - DARNALL ACH	19.79927	2.55370	2.53170	4.29579	16.25964	2917014.91689	1590.92290
13	FT IRWIN - WEED ACH	1.83373	0.00000	0.17906	0.31399	1.41480	245847.84200	161.59010
14	FT JACKSON - MONCRIEF ACH	0.35333	0.00000	0.05167	0.08750	0.32000	62061.44000	38.42400
15	FT KNOX - IRELAND ACH	2.23818	0.01606	0.23124	0.77457	2.60177	494284.07915	360.29660
16	FT LEONARD WOOD - L. WOOD ACH	2.27039	0.03806	0.15853	0.61933	2.20275	456530.50281	279.53690
17	FT POLK - BAYNE-JONES ACH	2.78833	0.00000	0.09167	0.28500	1.48750	491943.96000	165.27380
18	FT RILEY - IRWIN ACH	2.23634	0.01555	0.22796	0.96815	2.59440	506514.68562	395.22060
19	FT SILL - REYNOLDS ACH	3.11194	0.00000	0.32562	2.44726	3.17563	455410.07844	536.37030
20	FT STEWART - WINN ACH	5.16866	0.02624	0.53598	1.77055	5.81800	917973.14569	684.84500
21	FT WAINWRIGHT - BASSETT ACH	3.07081	0.02307	0.31615	0.80661	3.59992	655088.06944	444.91690
22	KEESLER AFB - 81ST MED GRP	17.27167	0.00000	0.18250	4.65917	20.39417	809196.12000	562.53740
23	LANGLEY AFB - 1ST MED GRP	5.26848	0.18419	0.43128	0.95012	5.97483	1056653.00093	587.33600
24	MADIGAN AMC-FT. LEWIS	18.87250	0.28333	1.47583	1.80083	18.57167	3027903.70000	1472.55660
25	MT HOME AFB - 366TH MED GRP	5.28333	0.22833	0.00000	0.77417	4.54083	825379.72000	171.65320
26	NELLIS AFB - 99TH MED GRP, O'CALLAGHAN H	2.93716	0.10995	0.32398	0.87949	3.39254	509152.01658	396.27980
27	NH BEAUFORT	0.31917	0.00000	0.02917	1.01000	0.31250	157994.98000	230.84570
28	NH BREMERTON	1.62530	0.01579	0.15503	0.88732	1.83445	387068.33953	320.55250
29	NH CAMP LEJEUNE	10.45550	0.93696	1.23547	1.83344	10.89726	1209224.33242	883.61570
30	NH CAMP PENDLETON	8.09858	0.43894	0.90923	2.66932	7.94042	1130593.55667	899.52710
31	NH CHERRY POINT	4.94750	1.52000	0.28083	2.54167	5.26000	143166.34000	249.29040
32	NH GREAT LAKES	0.32833	0.00000	0.02083	0.12417	0.31667	57112.54000	38.63650
33	NH JACKSONVILLE	3.16766	0.56493	0.35613	0.67175	3.66893	96503.19996	148.07970
34	NH LEMOORE	4.53083	0.27167	0.03667	0.58750	3.41417	727194.58000	242.48220
35	NH OAK HARBOR	1.28278	0.00000	0.05317	0.68666	0.77104	283648.35556	196.47270
36	NH PENSACOLA	1.53587	0.10605	0.18771	0.86725	1.65440	208787.96861	251.36230
37	NH TWENTYNINE PALMS	2.18792	0.00755	0.15696	0.26450	1.84540	408140.39570	192.36690
38	NMC PORTSMOUTH	48.36333	6.49083	6.02333	4.11000	39.89417	5485192.17000	3326.45290
39	NMC SAN DIEGO	41.98917	8.40250	6.35000	10.25083	28.56333	10239103.73000	2697.56190
40	NNMC BETHESDA	16.06808	1.62142	1.91540	2.16924	14.79737	2068288.64210	1333.04730
41	OFFUTT AFB - 55TH MED GRP	1.32552	0.00119	0.16267	0.50986	1.24160	192667.21252	189.93620
42	SCOTT AFB - 375TH MED GRP	0.59988	0.00000	0.08287	0.14695	0.54071	86185.78014	65.85440
43	TRAVIS AFB - 60TH MED GRP	2.01658	0.00000	0.20935	1.88355	2.05268	338760.51657	416.54010
44	TRIPLER AMC-FT SHAFTER	24.56511	1.48157	2.35364	2.24657	22.68754	3502233.29438	1830.41360
45	WALTER REED AMC-WASHINGTON DC	6.37583	0.05083	0.65667	0.76583	7.55583	1274739.46000	745.19650
46	WEST POINT - KELLER ACH	1.51495	0.00000	0.11578	0.22325	1.04469	232800.75367	117.98650
47	WILFORD HALL - 59TH MED WING, LACKLAND	18.46000	0.00000	1.02500	2.07917	15.28417	4255637.05000	1230.13780
48	WILLIAM BEAUMONT AMC-FT. BLISS	12.55750	2.01917	1.66167	1.43083	15.10667	211633.29000	487.55070
49	WRIGHT PATTERSON - 74TH MED GRP	3.39331	0.00000	0.31933	1.68909	3.19164	569178.84798	447.55890

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